

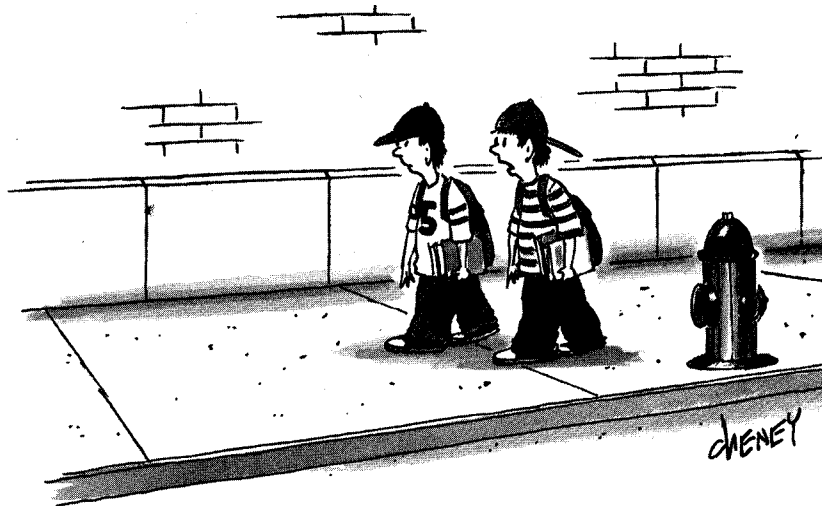
# **STRESSED OUT ON FOUR CONTINENTS: TIME CRUNCH OR YUPPIE KVETCH?**

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## **ABSTRACT**

Social commentators have pointed to the “problems” of citizens of industrialized countries, especially working women, who face “time stress”—an absence of sufficient time to accomplish all their tasks. An economic theory views time stress as an increasing function of the shadow price of time and suggests it will be more prevalent in households with higher incomes and whose members work longer in the market or on “required” homework. Evidence from microeconomic data sets for Australia, Germany, Korea and the United States corroborates this view. Adults in higher-income households perceive more time stress. In the United States a move from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of the income distribution raises time stress by half as much as an interquartile change in weekly market work. The relative effects of increased income compared to increased market work are larger in Germany, smaller in Australia, and roughly the same in Korea. Time stress is part “time crunch,” but much is also part “yuppie kvetch.”



*"So many toys—so little unstructured time."*

## I. Introduction

Substantial attention has been paid in the popular media and among social commentators (e.g., Hochschild, 1997) to the question of a “time crunch.”—a “shortage” of time faced by today’s worker/consumers.<sup>1</sup> This issue generates much concern about the problems of working people, and working couples in particular, who have two market jobs and may be unable or unwilling to substitute purchased services for time spent in maintaining a household. It is tied to surprise at the failure of annual market work hours to decline (Schor, 1991) and at the increasing fraction of adults who participate in the labor market (so that market work per adult in the United States has risen). The nature of the problem is summarized by a young working mother of two pre-school children who stated, “With the kids and the house, I often feel I have four hours of tasks and only two hours to do them in.”<sup>2</sup>

Economists do not appear to have studied this problem at all, other than to observe changing patterns of time use. There has, however, been some research by social psychologists and sociologists on the subject. Much simply uses time-budget surveys to identify demographic correlates of total time spent in market and household production, equating stress (a subjective outcome) with time use (an objective outcome). A few studies (Lochhead, 2002, and Holz, 2002) have used representative surveys (for Canada and Germany respectively) to relate subjective feelings of time stress to objective measures of time use and to demographic characteristics.<sup>3</sup>

There are two central issues here for economists: 1) Do we as economists have anything useful to add to the discussion of time stress (other than more complex statistical techniques) beyond what scholars in other disciplines have already offered? 2) If so, what is our comparative advantage in discussing this question? The former issue is crucial: While economists are

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<sup>1</sup>Newspaper stories discussed the issue, e.g., <http://www.pressdemo.com/outlook98/stories/39353.html>, and are legion today. Government publications such as <http://www.ed.gov/pubs/PFIE/constrat.html> became noticeable during the 1990s, although Linder (1970) pointed it out a generation earlier.

<sup>2</sup>Telephone conversation with Hannah E. Hamermesh, July 5, 2002.

<sup>3</sup>There is some recent interest in time pressure at work (e.g., Berg and Kalleberg, 2002, and Leontaridi and Ward, 2002), which while seemingly related to this study requires an entirely different economic analysis.

increasingly engaged in empirical studies of subjective outcomes, in many cases our research addresses questions that scholars in other disciplines have already addressed, is not linked to economic theory, and/or only adds empirical work that may use different data sets but that employs methods and approaches used many times before by others.<sup>4</sup> On the second question, as in most cases in which economists have successfully addressed areas that had previously been considered outside our purview (e.g., Becker, 1976), our comparative advantage here surely lies in adducing a maximizing theory to describe behavior and to generate new predictions.

Time stress is a problem analogous to poverty: Both reflect the scarcity of resources, time in the former case, market goods in the latter case. The only difference is that, in what we hope will be a growing economy, the goods constraint will relax over time, while the time constraint cannot. The twenty-four hour day will not be lengthened, implying that the time crunch will become relatively more binding for the majority of citizens. Once one thinks about time stress in this economic way, the approach to its study is immediately apparent: Greater time stress should result from an increasing relative abundance of goods, since time and purchased goods are not perfectly substitutable. It is not only the leisure class that will be “harried” (Linder, 1970): Any group, regardless of its hours of market work, will find itself under time stress as its ability to purchase market goods increases.

We derive an economic theory of time stress and generate predictions from it. Because the outcome is subjective, it is even more important than usual to test the theory on several data sets and thus allow for the possibility that the framing of the survey questions might be incorrectly seen as supporting or refuting the theory. Section III thus discusses a variety of data sets that are used in the subsequent analyses, which in turn are presented in Section IV for each of Australia, Germany, Korea and the United States.

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<sup>4</sup>A careful exception is DiTella *et al* (2001). Diener and Biswas-Diener (2002) survey the long-standing social-psychological literature and the recent economic research showing that economic factors affect subjective well-being.

## II. An Economic Theory of Time Stress

The term “stress” has a large number of dictionary definitions; but the most relevant here is “physical, mental or emotional strain or tension.” “Time stress” should thus be interpreted as the kind of strain or tension that is generated by feelings that the available time is insufficient to accomplish the desired activities. To economists time, like goods, is always insufficient—because time is limited, everyone will to some extent be stressed for time. To be useful we must interpret time stress in relative terms, examining the predictors of differences in time stress among people. This emphasis on inferring the effects of external shocks on relative amounts of time stress is no different in this sense from studying the demand for hamburgers or automobiles. Our major interest is not in predicting how many burgers or cars people will consume; the theory speaks only to the directions and sizes of the effects of changing incomes and prices.

Following Becker (1965) we can consider commodities as produced in households by combinations of household time,  $T$ - $H$ , and goods  $X$ . Commodities  $Z_i$  are produced by a household that maximizes the utility function  $U(Z_1, \dots, Z_N)$  according to the production functions:

$$(1) \quad Z_i = Z_i(T_i, X_i), i = 1, \dots, N.$$

We assume that the household maximizes utility, defined for simplicity over the commodities,  $Z_i$ , based on the prices of market goods that the household’s income can purchase and on its available time. Following Becker (1965), assume that household production functions are characterized by fixed coefficients, with:

$$(2) \quad T_i = t_i Z_i \text{ and } X_i = b_i Z_i, i = 1, \dots, N,$$

and that goods prices are  $p_i$ . The household’s income, which is entirely spent on the  $X_i$ , is:

$$(3) \quad \sum p_i X_i = H_M w_M + H_F w_F + I,$$

where the subscripts  $M$  and  $F$  denote the husband and wife,  $I$  denotes unearned income and  $w_i$  the spouses’ wage rates. The household faces this goods constraint and the total time constraint:

$$(4) \quad \sum T_i = T - H_M - H_F,$$

where  $T$  is the total time endowment of the household.

Maximization of utility in this system is completely standard (although the two constraints are usually combined into one “full-income” constraint). One forms the Lagrangean expression consisting of  $U$  plus a Lagrangean multiplier  $\mu$  times the constraint implied by (3) plus  $\lambda$  times the constraint implied by (4), substitutes expressions in  $Z_i$  for the  $T_i$  and  $X_i$ , and maximizes with respect to the  $Z_i$  and the Lagrangean multipliers.

Of central interest here is the constraint imposed by (4)—the time constraint. Treating each spouse’s hours worked as fixed, one can show that:

$$(5) \quad \partial \mathcal{N} / \partial w_j > 0, j = M, F, \text{ if } U_{12} > 0,$$

the usual assumption about substitution between the commodities. We can show that  $\partial \mathcal{N} / \partial I > 0$  under the same assumptions. Thus if hours of work are held constant, anything that raises the household’s income—higher wage rates or additional unearned income—will increase the degree to which the time constraint binds. Finally under these assumptions,  $\partial \mathcal{N} / \partial T < 0$ . Obviously hours in the day are fixed; but anything that makes the household more efficient in its activities can be viewed as equivalent to an increase in effective time and should thus reduce the extent to which the time constraint is binding.

Relaxing the assumption of fixed hours of work makes the predictions generally ambiguous. If, however, as seems consistent with evidence on labor supply elasticities,  $\partial H_j / \partial w_j \geq 0$ , then the positive impact of higher wage rates on  $\lambda$  becomes even larger when work hours are allowed to vary. Obversely, the evidence on income effects suggests that  $\partial H_j / \partial I \leq 0$ , so that the ceteris paribus positive impact of increases in unearned income on  $\lambda$  is attenuated by the changes in hours worked that they may induce.

We have implicitly treated the household as being characterized by a unitary model of household decision-making—we have assumed that there is a family utility function. A massive literature (summarized, e.g., by Lundberg and Pollak, 1996) suggests that families are more

complex than this. The basic predictions of the model do not change, however, if we assume a more complex decision-making process within the household.

This economic model describes the effects of several variables on the extent to which the time constraint binds the household. The notion of “stress” is not, of course, economic; but it seems reasonable to assume that stress, a subjective measure, is positively related to the shadow price of time,  $\lambda$ . Let  $S_j$  be spouse  $j$ ’s index of time stress. Then for a given allocation of time to “work” activities, the predictions about the impacts on  $\lambda$  of the  $w_j$ ,  $I$  and  $T$  can be carried over, mutatis mutandis, into predictions about their effects on perceived time stress. Anything that reduces the time available for the production of household commodities, such as additional market work, will also increase time stress. We are thus equating subjective time stress with the unmeasurable, but predictable shadow price of time that the consumer faces.

We have written the production function  $Z$  as being identical for all households, a clearly heroic assumption, and one that much research has shown to be incorrect. Perhaps the major problem with it is the implicit assumption that people are equally efficient in combining goods and leisure regardless of their other characteristics. For our purposes the most important determinant of the productivity of time in the household is its members’ health (Grossman, 1972). Better health makes one more efficient in producing commodities in the household, effectively raising the productivity of time and thus reducing time stress.

Implicit in the derivation is the assumption that the household has achieved its long-run utility-maximizing position. Households are, of course, buffeted by shocks that require them constantly to adjust toward their maximizing positions. Following the literature on adjustment costs (Hamermesh and Pfann, 1996), we assume that any demographic change is equivalent to a reduction in the household’s efficiency in combining goods and time. Such changes as the entry or exit of a household member will make effective time scarcer and increase perceived time stress.

### III. Data Sets for Studying Time Stress

No large recent nationally random sample of the American population contains information on respondents' perceptions of time stress. Thus the predictions of Section II cannot be tested thoroughly on current or recent American data. The Household, Income and Labour Dynamics in Australia (HILDA) survey is the first contemporary large-scale nationally random sample to contain information on perceived time stress and standard household demographic/economic variables.<sup>5</sup> The first wave of the HILDA was collected beginning in August 2001. Modeled after the American Panel Study of Income Dynamics, the HILDA obtained answers in Wave 1 from 13,962 members of 7680 households about the usual demographic and labor market outcomes that have become standard in large household panels. The HILDA also addresses to each adult respondent a personal questionnaire that includes the question, "How often do you feel rushed or pressed for time? Almost always; often; sometimes; rarely; never." This question provides the basis for the analysis of time stress in Australia.

The German Socio-economic Panel (SOEP) has 19 years of data, with the current sample containing approximately 12,000 households. (Wagner *et al*, 1993, contains a description of the SOEP.) It covers all the demographic and labor-market questions that have become standard in U.S. data. Its sponsors agreed to include in its 2002 wave a version of the same question on time stress that was contained in the 2001 wave of the HILDA. Although efforts were made to ensure that the question was cognitively as similar to the HILDA question as is possible, both language differences and the need to fit the question into the flow of the survey instrument meant that the match was not exact. The question and possible responses are: "Think about the last four weeks. How often during this period did it happen that you felt rushed or under time pressure? Always; often; sometimes; almost never; never." Because the SOEP contains detailed information on household structure and its changes, it allows us to account for demographic changes that might affect household production functions.

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<sup>5</sup><http://www.melbourneinstitute.com/hilda/>. See Wooden *et al* (2002) for a discussion of the HILDA.



Neither of these data sets reports actual time spent working and on household tasks. Both ask respondents to list how many hours per day or per week that they usually spend in these activities. Thus like any retrospective data that are unconstrained by the need to sum to a fixed available time, they are subject to potential reporting problems. Fortunately the 1999 Korean Time Use Study includes the following question: “How often do you feel rushed or pressed for time? Always; often; rarely; never.” The survey covered 17,000 households, including all adult members. It obtained time diaries for each person for two days, giving us a careful record of each person’s activities, as well as some demographic information in addition to the subjective responses about time stress. Its main drawback is that it contains no information on wages or income, which we instead impute using regression results for earnings based on a large contemporaneous Korean data set covering individuals.

Two national U.S. surveys in the 1970s, the Quality of American Life Surveys of 1971 and 1978 (Campbell, Converse and Rodgers, 1975; Campbell and Converse, 1984) included questions on time stress as part of their small-scale samples of individuals. The question was: “In general, how do you feel about your time—would you say you always feel rushed even to do the things you have to do, only sometimes feel rushed, or almost never feel rushed?” Regrettably the QAL surveys contain no information on the time use of respondents’ spouses other than an indicator of whether or not the spouse works; and the information on the respondents includes nothing about their allocation of non-market time. Unlike the empirical analyses in Sections IV.A-C, the analysis for the United States in Section IV.D will be based on individuals on whose spouses there is minimal information. Fortunately, however, information on the respondent’s family income is available in the surveys.

The exact same question on perceived time stress as in the QAL was asked of half the respondents in the U.S. General Social Surveys of 1982 and 1996; and the GSS also provides information on family incomes. Because it focuses on respondents rather than families, like the QAL it lacks detailed information on spouses’ activities. While comparing responses to the same

question across different surveys is questionable due to potential variations induced by context and method, we compare the respondents to those in the QAL to examine trends in time stress.

#### **IV. The Determinants of Time Stress**

Our purpose is to link the available data on perceived time stress to measures of time use, the scarcity of time for household production and the income used to purchase goods to combine with that time. In each Part we examine the distribution of perceived time stress and how it differs by sex. Each then proceeds to analyze the determinants of interpersonal differences in time stress. On each of the data sets we restrict the analysis to couples in which at least one of the partners is working in the labor market. Analyses are also presented for married couples with both spouses working in the labor market—the archetypal couple in the social-psychological “time crunch” literature.

##### *A. Australia, 2001*

The distributions of responses to the question on perceived time stress in the 2001 wave of the Australian HILDA are shown in Table 1, first for partners in all couples with a working spouse, then for partners in couples in which both spouses are working.<sup>6</sup> Among all working couples, and for two-earner couples perceived time stress is greater among women than men. The differences are bigger in two-earner couples, suggesting (since women are less likely to be the worker in one-worker households) that differences in the incidence of market work are an important determinant of differences in perceived time stress. That women perceive more stress suggests that the focus in the literature on the time crunch as a women’s issue is well founded. Most important, in these data most members of couples that are not entirely out of the labor force perceive some time pressure (perhaps a recognition of the time constraint that everyone faces).

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<sup>6</sup>Throughout this and the next part of this Section we include both married couples and the substantial number of (typically younger) couples who state they are in permanent partnerships. This recognizes the nature of contemporary household relationships in Australia and Germany. Eleven percent of the couples in the larger sample are partnered rather than married, as are 13 percent of the couples in the two-worker sample.

Of particular interest is the relationship between the partners' perceived stress. As the chi-squares show, these are not independent: Where one partner is more stressed for time, so is the other. This provides an empirical basis for the view in Section II that perceived time stress should be analyzed in the context of the constraints facing the entire family. Whether these expressed interactions are determined by a similarity of underlying tastes, by a common household goods constraint, by objective unmeasurable variables, or by the impacts of one partner's observable activities on the other's time stress cannot be inferred from this simple test.

Given the wealth of (retrospective) information on time use in the HILDA, and given the typical reader's unfamiliarity with Australian household demographics/economics, it is worth examining the means of some of the crucial variables that we use. Table 2 presents the means and standard deviations of these variables for the two types of couples separately by gender. Most of the statistics seem quite reasonable: Where both spouses work in the market, men's total hours on all jobs are longer, and they work on more days per week. Even among two-earner households men's hours of dependent care and errands/housework are far below those of women, to the point that the total of these and market work hours is somewhat less (62 hours per week) than that of their partners (66 hours per week). We can use the statistics to compute the unadjusted female/male hourly earnings ratio, 0.94 in the two-earner couples, about 5 percentage points higher than indicated in other studies (Borland, 1999). Finally, in 2001 disposable income per capita in Australia was about \$27,000 (Australian dollars). A mean of \$74,269 among all households with earners (with an average household size of 2.6) seems quite reasonable.

For Australia we define the person as stressed if he/she responds as being always or often stressed for time. Aside from the central variables of interest, in this and the subsequent parts we also adjust for a number of demographic variables that might affect perceived time stress. In Australia these include indicators of urbanicity, immigrant status, whether the couple is married, whether they moved house in the past year and whether they became partnered in the past year.

Also included here, but not presented in the tables (because we have measures of time use) are indicators of the number of pre-school and school-age children.

Table 3 presents the derivatives of the probit functions relating whether the respondent is always or often stressed for time to the major variables of interest.<sup>7</sup> Each coefficient shows the impact on the probability of being stressed of a one-unit increase in the variable. The estimates are presented separately for men and women, and for all couples with a worker and two-earner couples only. The sample sizes are substantially smaller than those implied by the statistics in Table 1, because the data on the broad measure of household incomes that we use are missing in about 20 percent of the cases.

The central contribution of economic analysis to the discussion of time stress is its emphasis on the role of command over market goods in generating time stress. The crucial prediction is that, other things equal, respondents in higher-income households will state that they are more stressed for time. Except for men in two-worker households, where we find no effect, the estimates corroborate this prediction: The effect of additional household income, holding all other characteristics constant, is positive, and it is statistically significant for women. The effects are not insubstantial: Moving from households at the 25<sup>th</sup> to those at the 75<sup>th</sup> percentiles in the larger sample, a woman's probability of stating that she is stressed for time rises by 0.024. Among two-earner couples the same change in household income raises her probability of stating that she is stressed for time by 0.030. Among men the increases are 0.017 and 0.019.<sup>8</sup>

Additional work hours (and thus reduced non-market hours) have a very large effect in generating time stress in Australia. A move from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of work hours

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<sup>7</sup>Here and in the other parts of this Section the estimates are presented for simple binary definitions of stress. The equations were also estimated using ordered probits describing all possible responses to the questions on time stress. In each case the coefficients on household incomes in the ordered probits were more significant statistically than those in the simple probits. We do not present them, however, because they are less readily interpretable.

<sup>8</sup>As the discussion in Section II suggested, if we exclude the measures of time use from these probits, the marginal effects of increases in household income are greater. The same thing occurs in the estimates in the subsequent Parts of this Section.

raises men's probabilities of stating that they are stressed for time by 0.125. Among women the effects are larger still, 0.290 and 0.157, although the former effect results from the nonparticipation of women at the 25<sup>th</sup> percentile of the hours distribution. Working the same number of hours per week, but spreading them over additional days, has a negative, but statistically insignificant effect on perceived stress. Additional housework has no effect on men's perceived time stress, but it does have a small and statistically significant effect on women's perceptions. On the other hand, additional hours of dependent care each week surprisingly have no impact on women's expression of time stress, but they do raise men's perception of time stress. It is worth noting (not shown here) that, holding constant weekly hours of dependent care, additional children have little effect on men's perceived stress. An additional pre-school child, however, generates a significant increase in a woman's probability of perceiving herself as stressed for time of 0.09; each additional school-age child increases this probability by 0.07.

The theory in Section II implied that factors that generate greater efficiency in producing commodities at home are equivalent to increases in endowments of goods and time and will lead, other things equal, to a perception of being less stressed for time. The results in Table 3 corroborate this view: The roughly 60 percent of the sample that is in excellent or very good health is from 6 to 13 percentage points less likely to say that they are stressed for time than otherwise comparable respondents. Moving from poor to very good or excellent health has the same effect on perceived time stress as a ten-hour reduction in weekly hours of market work.

Finally, we can examine whether the partner's characteristics (the four variables whose effects are specifically presented in Table 3 plus the partner's immigrant and health status) have any impact on the respondent's perceived time stress. Except for women in households with one or two workers, there appears to be little spillover from one's partner's characteristics. Especially among men, very little of the variation in perceived time stress is accounted for by variations in one's partner's characteristics, including the partner's time use.

*B. Germany, 2002*

The distributions of responses to the question about time stress in the 2002 wave of the SOEP are shown by sex in Table 4 for married or partnered couples with at least one working partner and those with both partners working. The distributions are quite similar to those shown in Table 1 for Australia, once we remember that the possible responses are somewhat different (in particular, that the response allowing the greatest expression of stress is broader in the Australian data.) The distributions are such that a substantial minority states they are always or often under time pressure, and few state that they are almost never or never under time pressure.

Both in the larger set of couples and in the subsample with both partners working, women perceive more time stress than their male partners, just as in the Australian data. In the former (latter) group 36.4 (42.4) percent of women state that they are pressured for time at least often, while only 34.3 (37.8) percent of men do. Only 21.9 (15.1) percent of women in the larger sample (the subsample) state that they are almost never or never stressed for time, while 27.5 (21.2) percent of men do. As in the Australian data, the gender differences are larger among couples with both partners working. We can again use the 5x5 contingency tabulations of the partners' responses to the question on time pressure to test whether the responses are independent. As the  $X^2$  statistics show, the responses are mutually dependent. If one partner states that he/she is more or less time pressured, the other partner is more likely to have the same perception about him/herself than would be true if the partners behaved independently.

Since the data for Germany are also likely to be unfamiliar, we examine descriptive statistics on the major independent variables to check for consistency with previous work. Table 5 thus presents statistics describing the measures of time use and income on which we base the subsequent econometric analyses. Again the time use measures are retrospective, not from a time diary. One set of questions asks the respondent about his/her main job, both the weekly hours

worked and the number of days on which work is performed.<sup>9</sup> Another series of questions asks how hours in a typical day are distributed across a set of seven categories of activities. We aggregate those that might be viewed as household work or as dependent (child and elder) care and concentrate on those aspects of non-market work. Each person's monthly pay (in euros) is reported; we use gross monthly pay, measured as monthly pay plus 1/12 of extra pay (13<sup>th</sup> and 14<sup>th</sup> month pay, Christmas pay and vacation bonus, in recognition of German institutions governing wage payment). Because of the preliminary nature of the 2002 data, we lack information on total household incomes and add up labor incomes of both partners. (We are thus excluding I which means, if, as seems likely, it is positive correlated with wage rates, that our estimates of the impacts of household income on perceived time stress are biased toward zero.)

Most of the information provided in the table is unsurprising. In households in which both partners work in the market, total time spent in both market and nonmarket work (weekly work plus 7 times the total of daily time inputs into the two home-time categories) is greater for women (69.4 versus 58.4 hours per week). The excess is even larger in the broader sample of all couples that have at least one working partner. Unsurprisingly, given the relatively small dispersion of hours of market work in Germany (Hamermesh, 1996, Ch. 2), there is very little deviation from a five-day workweek in this sample. The implied gross hourly pay (in the subsample of two-earner couples) is €15.77 among men and €11.88 among women, indicating that women's hourly pay is 75 percent of men's. This gender pay differential is consistent with earlier evidence for married couples (e.g., Gerlach, 1987).

To isolate the effects of differences in income and time use on perceived time stress in the German data we control for a set of demographic and related factors that might be expected to generate individual differences in perceived time stress and that are similar to those used in Part

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<sup>9</sup>Data are also available on weekly hours of other market work (moonlighting). Only 6 percent of the men and 5 percent of the women report such other work, with the mean weekly hours on second jobs equaling 7 for both men and women who moonlight. Since days worked on the second job are not reported, and since the fractions working such jobs and the hours worked on them are quite small, we ignore them in the analysis of the German data.

A. These include an indicator of residence in the former East Germany or East Berlin, an indicator for location in a city of at least 100,000 people, and the number of children and an indicator for pre-school children. We capture potential differences between types of couples by legal status by an indicator of whether the partners are married. We depict potential adjustment costs by indicators of whether the marriage/partnership was formed and whether a child was born or left home within the past 12 months. Finally, since pressures on self-employed workers may differ from those on employees, an indicator of self-employment status is also included.

As in the Australian data, we capture perceived time stress in Table 6 by estimating probits describing the impacts of these variables on the probability that the person responds that he or she is always or often stressed for time. Table 6 lists the estimated derivatives of the probit function and their standard errors for individuals in couples with at least one working partner, and for those in couples with two working partners. Additional household income (which, since both weekly hours and days of work are held constant, can be viewed as an increase in the household's full income) generates significant increases in the time stress perceived by men and women, both in the sample of all working couples and among two-earner couples. An increase in household income from the 25<sup>th</sup> to the 75<sup>th</sup> percentile increases the probability that a man responds that he is stressed for time always or often by 2.3 and 1.8 percentage points in the two samples. Among women the effects are about the same, 2.1 and 1.9 percentage points. The effects of these interquartile changes in household income are quite close to those found in the Australian data.

Own hours of work have significant and essentially identical positive effects on perceived time stress for both sexes. The impacts are much smaller than those in Australia: Increases from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of hours of market work increase the probability that a man is stressed for time by only 1.2 and 1.1 percentage points in the two samples. Among women the effects are larger, increases of 3.6 and 2.0 percentage points (again because a woman at the 25<sup>th</sup> percentile in the first sample does not participate in the labor force). For both sexes working additional days, but holding weekly work hours constant, reduces perceived time stress. This is



similar to the results for Australia, but here, at least for two-earner couples, the impacts are statistically significant. The (relatively rare) event of working 4 days instead of 5 reduces a person's probability of being stressed for time by about 3.5 percentage points.

Among men additional time spent in household production, both dependent care and cleaning-cooking-shopping, has little effect on time stress. (Remember from Table 5 that the mean amount of time men devote to these activities is tiny.) Among women, however, additional time in dependent care has a substantial and significant positive impact on their time stress. While the impacts of additional time spent cleaning-cooking-shopping are not statistically significant, they are positive (and larger for women in two-earner households). Among women in this sample, the impact on perceived time stress of an additional hour spent in dependent care or homework is (insignificantly) larger than that of an additional hour of market work.

Being in at least good (self-reported) health has very large negative effects on the probability of being stressed for time. Although the variable is not quite comparable to that defined for Australia, redefining it to make it as closely comparable as is possible does not alter the conclusion that self-reported good health is very strongly related to less perceived time stress. Evidence of an interrelationship between one partner's time allocation and demographics and the other's time stress is mixed. Additional hours of market work by one's spouse do increase one's perceived time stress, but the effects are not large and not highly significant; and the overall effects of partner's characteristics are statistically significant in only two of the four probits.

The measures of household pay used thus far in this Part are from the 2002 SOEP. As is well known, there is substantial annual variation in earnings and incomes; and the static theory of Section II implicitly assumes that we should be studying the impacts of incentives in long-run equilibrium. To account for this potential problem, we append data on gross household annual pay from the 2000 Wave of the SOEP to the 2002 data. (Data from the 2001 Wave, which would be more appropriate for this purpose, are not yet available.) For both men and women we form

gross annual household pay for 2000 exactly as we did for 2002—annualizing gross monthly pay and adding all non-recurring pay received in the previous year.

Table 7 reports the results of estimating the same probits as in Table 6, but with household gross annual pay in 2000 added to the equations. The sample is restricted to couples that were in existence in both 2000 and 2002 and that responded to the survey in both years, requirements that reduced sample sizes by about 25 percent. Compared to the same equations estimated over these (reduced) samples, but without Year 2000 income, the equations in Table 7 describe differences in time stress better: All of the t-statistics on the Year 2000 household pay measure are highly significantly positive. Moreover, in all cases the sum of the coefficients on household pay in Years 2000 and 2002 exceeds the corresponding coefficient in Table 6 (and also in untabled equations on these same reduced samples). These estimates indicate that variations in permanent income, which economic theory suggests will be a better predictor of goods expenditures than one year's pay, have greater effects on perceived time stress.

### *C. Korea, 1999*

The distributions of the four possible responses to the question, “How often do you feel rushed or pressed for time?” in the Korean Time Use Survey of 1999 are shown in Table 8 by sex for all couples with at least one worker, and separately for two-earner couples. Only those couples that filled out time diaries for two days are included in the samples used in this section, and only those for whom both days were weekdays. Unlike in Australia and Germany, among all couples with at least one worker perceived time stress is greater among men than among women. This difference probably results from the lower female participation rate in Korea than in the West, so that a larger fraction of the couples in the upper half of Table 8 contain only male workers than their counterparts in Tables 1 and 4. When we examine the responses by members of two-earner couples, shown in the bottom of Table 8, we find perceived time stress is far greater among working wives than among their working husbands, with the differences being even larger than those found in Australia and Germany. As in those countries, the responses of the spouses

are not independent: A husband/wife whose spouse says she/he is more stressed for time is more likely to respond that he/she is stressed for time.

The main reason for using the Korean Time Use Survey is that, unlike the other data sets used here, it contains information from a time-budget. The respondent is forced to list activities on which the time spent totals 24 hours in a day. This departure from the other surveys allows us to examine whether the measurement error inherent in the CPS-type recall data on work hours used in the other Parts of this Section might be biasing the estimated impacts of market and other work hours toward zero and thus generating an overstatement of the relative importance of full-income differences in affecting time stress. To reduce measurement errors still further we average the variables describing time use over the two weekdays in each spouse's diaries.

Table 9 presents the means and standard deviations of the time-diary measures of market work, household care and family care. Korean men do remarkably little at home, much less even than their Australian or German counterparts, be it taking care of the house, shopping or caring for children. In two-worker households on a typical workday the wife spends close to two more hours than her husband in market work, household work and family care. Koreans do not work in the market on Sundays, and Saturday workdays are typically not so long as weekday schedules. An upper bound for actual weekly work hours is six times average daily hours, roughly 50 for men and 42 for working women. These estimates are far short of the CPS-type answers about weekly hours worked that are also included in the data set and whose means are shown in the second rows of each half of Table 9, a shortfall that reproduces on a single data set inferences drawn from comparisons of time-use and CPS data in the U.S. (see Juster and Stafford, 1991).

The bottom row of each half of Table 9 presents statistics describing the family's imputed earnings, imputations that are necessitated by the absence of any earnings or income information in the Korean Time Use Survey. We used a 10-percent random subsample of the 1999 Korean Wage Structure Survey to estimate standard log-earnings regressions separately by sex for working married persons, including all the variables that might affect wages and that are common

o both surveys.<sup>10</sup> We then used the parameter estimates to impute monthly earnings for each respondent in the Time Use Survey. Each spouse's imputed earnings were summed and multiplied by 12 to obtain imputed annual incomes. The totals, roughly 18 and 24 million won (US\$15,000 and US\$20,000), accord well with information on household incomes in Korea.<sup>11</sup> The small standard deviations shown in the table, induced by our using imputations, underscore the point that the absence of income or earnings measures means that we are necessarily introducing errors into the income variables we use to predict perceived time stress. Exactly opposite the case of the measures of time use, the income measures contain more measurement error than those in the previous Parts, so that we will be understating the relative importance of income differences in determining time stress.

Table 10 shows the results of estimating probits determining the chance that the respondent states that he/she is always under time pressure. The estimates are presented in exactly the same form as those in Tables 3 and 6. In these equations we also include indicators of location and metropolitan residence, of the presence of pre-school children and a continuous measure of the number of household residents age 10 and over. The essential results are remarkably similar qualitatively to those in the earlier Parts of this section. Additional (diary) hours of market work have highly significantly positive effects on perceived time stress. Moving from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of daily diary work hours raises men's probability of stating that they are always rushed by 0.188 and 0.158 in the two samples, and women's by 0.357 and 0.268. Household work also has significantly positive effects on time stress, but additional time spent in family care affects time stress significantly among women only if we include both one- and two-earner households. Finally, as in the estimates for the other countries, cross effects—the

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<sup>10</sup>The regressions are estimated over 13,353 married men and 2851 married women respectively. Each includes quadratics in monthly work hours and age, and vectors of indicators of educational attainment, occupation and industry. The adjusted  $R^2$  in the equation for men is 0.42, in that for women, 0.53. Annual bonuses, on which the data may be less reliable, are excluded from the earnings variable.

<sup>11</sup>The National Survey of Household Income and Expenditures shows that the average household with earners has 1.49 earners and has an average labor income of 22.48 million won.

impacts of one's spouse's characteristics—are not particularly large and generally not significant as a group.

Holding market and nonmarket work hours constant, individuals with higher (imputed) household earnings are more likely to respond that they are always stressed for time. These results replicate perfectly the findings for Australia and Germany—higher income, like additional market and household work—leads to greater perceived time stress. Without actual income data it is difficult to compare the sizes of these effects to those of additional work hours. Assuming, however, that the distribution of labor income in this sample exhibits the same degree of inequality as that exhibited in the Korean National Survey of Household Income and Expenditures, we can use the sample means here and the parameters of that distribution to simulate the impact of moving from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of household income.<sup>12</sup> Such a move raises a man's probability of responding that he is always rushed by 0.059 and 0.042 in the two samples, and a woman's by 0.081 and 0.123. These effects are smaller than those of interquartile changes in work hours; relative to the impacts of changing work hours, they are larger than those found in Australia and smaller than those found in Germany.

We reestimated the equations by replacing the time-diary measures of market work with the CPS-type responses. As expected, the parameter estimates were not quite so significantly nonzero, and their implied impacts on time stress were slightly lower. Overall, however, these additional results suggest that using CPS-type measures of hours instead of diary measures does not induce a very large negative bias in the parameter estimates.

#### *D. United States, 1971 and 1978, 1982 and 1996*

The Quality of American Life and General Social Surveys in the U.S. allow only three possible responses to the question about time pressure. Moreover, having fewer respondents, these surveys are less likely to generate the kind of convincing results shown above and should

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<sup>12</sup> Quantile differences in earnings in Korea in the late 1980s look similar to those in Western Europe (Topel, 1999); and the survey data on which we base the simulations look very much like those in Topel.

thus be viewed as providing weaker tests of the theory, and somewhat less information on time stress, than the Australian, German or Korean surveys. Nonetheless, because they are the only large-scale data sets available to analyze this issue for the U.S., it is worth using the information. Because the QAL samples are fairly small, we pool the data for 1971 and 1978 in all the results presented here.<sup>13</sup>

The distributions of perceived time stress across the three possible responses are shown for both sexes, and for couples with at least one working spouse, and with two working spouses, in Table 11. (Unlike in the other data sets, the men and women in the sample are not from the same couples.) Even in the sample of people in couples with one or two working spouses, in most of which it was the wife who was not working, women are less likely than men to state that they are sometimes rushed or almost never rushed. While the differences between the sexes are not statistically significant, they are nearly so. Among respondents whose spouses work in the labor market, a substantially higher fraction of the women indicated that they are always rushed for time, and a much smaller fraction indicated that they are almost never rushed. The differences by gender between the responses are highly significant statistically. As in the other samples, women, especially wives who work in the labor market, are more stressed for time.

As in the previous Parts, we present estimates of probit derivatives on time stress in Table 12, for the entire sample of couples with at least one working spouse, and for the subsample in which both spouses work. Since roughly one-third of the respondents stated that they were always rushed, a fraction similar to those included as rushed in the previous Parts, the tabulated results are for probits describing the probability that the QAL respondent states that he/she is always rushed. In each probit we include indicators for geography (location in the South and in an SMSA), for the absence of health problems (a different metric than for Australia or Germany), for whether the person or one of his/her parents is an immigrant, for self-employment status, and

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<sup>13</sup>The 1978 QAL contained a longitudinal component that included some of the respondents in the 1971 QAL. We include each such respondent once here, using his/her data for 1978 only.

for whether the marriage occurred within the past year (as before, an attempt to account for adjustment costs in household production).

Despite the much smaller samples and the lack of detailed data on spouses, in many ways the results are quite similar to those in the previous sections. A move from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of men's work hours raises the probability that the respondent states he is always under time pressure by 0.041 (0.051 in the two-earner sample), with effects of 0.150 and 0.065 for women in the two samples. The presence of additional children, especially pre-schoolers, has no effect on men's perceived stress but substantial and statistically significant positive effects on women's perceived time stress. Having a pre-school child increases the probability that a woman states that she is always pressed for time by 10 percentage points. Unlike in the other samples, the health measure does not consistently produce the expected negative impact on perceived time stress (although the only statistically significant effect is negative).

As in the other samples additional household income generates additional perceived time stress. In both samples the positive effects are statistically significant at least at some low level of confidence. The effects on the probability of being always rushed for time of moving from the 25<sup>th</sup> to the 75<sup>th</sup> percentile of the distribution of household income range from increases of 0.026 to 0.037. For men these effects are somewhat smaller than those generated by the same interquartile changes in weekly work hours.

These old American data have only one advantage over the other data sets: Their longitudinal component allows us to provide a bit of evidence on the possibility that the entire set of responses that we have documented reflects nothing more than a complex set of correlations. While the relevant subsample is very small—around 300 men and women in couples with at least one working spouse, it does allow us to test whether perceptions of time stress respond to changes in objective characteristics. A complete analysis requires examining all possible transitions across the two years, but the sample sizes preclude it. Instead, we estimate a probit describing whether perceived time stress increased. (Increases occurred among 20.3 percent of the husbands

and 31.5 percent of the wives.) A higher value in 1971 of a variable that raises perceived time stress should have a negative effect in this probit, while higher values of such a variable in 1978 will raise this probability. Estimates of these probit derivatives are presented in Table 13. All have the expected signs, and three of the four are statistically different from zero at least at the 90 percent level of confidence. The results suggest that the estimates shown in the earlier tables are not merely statistical artifacts resulting from correlations between unobserved unchanging components of perceived time stress and work hours.

While the GSS question on time stress is identical to the QAL question, the contexts differ. Thus the reliability of any trends we discover must be discounted. Despite these potential problems, in Table 14 we present estimates of probits for men and women that combine data from the two QAL surveys and the two GSS. The control and other variables are identical to those in Table 12, except that recentness of marriage is excluded, as it was not included in the GSS.

The estimates show no indication that men's perceived time stress was significantly greater in 1996 or 1982 than in the 1970s. Even accounting for their greater hours of market work, the indicators for survey year show that more women stated that they were always rushed in the GSS data than in the QAL surveys. That the effects are nearly identical for 1982 and 1996 and substantially greater in 1982 than in 1978, however, suggests that the results may just reflect differences in the context in which these identical questions are asked rather than secular increases in the fraction of women who are stressed for time. Suffice it to say that this exercise does not provide strong evidence for the existence of a trend in perceived time stress between the 1970s and the mid-1990s in the U.S., once we account for changing time use and incomes.

## **V. Tests and Extensions**

In the estimation for Australia, Germany and Korea we have treated the equations describing the man's perceived time stress as independent from his partner's. Additional statistical efficiency can be gained if instead we viewed each partner's perceptions as jointly determined and estimated each of the pairs of equations in Tables 3, 6 and 10 jointly as a



bivariate probit. The reestimates never generated changes in the parameter estimates of more than one in the second significant digit, nor did they alter the statistical significance of the parameter estimates. They do, however, allow us to examine the cross-partner correlations in the errors. The estimated correlation coefficients (and their associated t-statistics) are 0.211 (5.43) and 0.193 (4.07) in Australia, 0.307 (9.52) and 0.357 (8.89) in Germany, and 0.424 (13.16) and 0.513 (12.76) in Korea. They indicate the clear presence of unobservables that generate stress in both partners simultaneously in all three countries.

One might argue that all we have shown is that high-income families complain a lot—higher income may lead people to complain about everything, or higher income is correlated with complaints in a variety of areas. If that is true, then higher-income people will be more likely to complain about their incomes than other people, other things equal. Alternatively, in the theory in Section II the Lagrangean multiplier  $\mu$  on the income constraint becomes less binding as full incomes rise. Following the same logic that linked predictions about impacts on the Lagrangean multiplier  $\lambda$  on the time constraint to changes in incomes, we can link increases in incomes to effects on  $\mu$  and infer that they will lead people to be less likely to be stressed for income. People in households with high incomes will, as we have shown, perceive more time stress but can be expected to be less likely to feel that their incomes are inadequate.

The Australian and German data allow us to examine this possibility, as each asks respondents, “How satisfied are you with your financial situation [household income],” with answers possible on a 10 to 0 scale (and in Australia (Germany) with 15 (15) percent of respondents answering 9 or 10, 18 (22) percent coding 8, 22 (21) percent coding 7, 13 (14) percent coding 6, 14 (13) percent coding 5, etc.). We include the same regressors as in the estimates in Tables 3 and 6. Because of the broad distribution of responses across the categories, the equations describing satisfaction with income are estimated using Poisson regressions.

The results of the estimation are presented in Table 15. They make it absolutely clear that those respondents with higher household incomes are more satisfied with their incomes than

people in households with lower household incomes. Interestingly, the effects are almost identical across genders within each country. The results are what any reasonable person might expect; but they do demonstrate that the findings in the previous tables are not an artifact of any generally greater dissatisfaction by members of higher-income households. People in those households are more satisfied with their incomes than people in lower-income households. They are also more stressed for time.

## **VI. Conclusions**

We have proposed an economic theory of time stress that yields specific predictions about the impacts of additional time spent in market and homework, and additional income, on individuals' perceived time stress. The essential novelty is to link time stress to the shadow price of time, which allows us to treat time stress in the context of a model of the representative consumer who purchases goods and allocates time. We have tested the model on a large variety of data sets covering four developed economies. The results are qualitatively remarkably consistent across the four: While additional market work does generate additional time stress, additional income, holding hours of market and homework fixed, also increases time stress. The relative sizes of these effects vary, with additional income having the largest impacts relative to additional market work hours in Germany, intermediate effects in the United States and Korea, and the smallest relative impacts in Australia. Indeed, in Germany comparable increases in market work hours and incomes increase perceived time stress by roughly the same amount.

The results suggest that at least some of the concern about a "time crunch" may be misplaced: Complaints about insufficient time come disproportionately from higher-income families. Whether one should be concerned about these complaints or simply view them as "yuppie kvetching" is a matter of preference. In a world in which sympathy is scarce, however, it seems reasonable to argue that the "time crunch" may have a smaller claim on public sympathy than low incomes.

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**Table 1. Percent Distributions of Time Pressure, Married/Partnered Individuals in Couples, Australia, 2001**

	MEN	WOMEN
One or two working partners		
Under time pressure <sup>a</sup>		
Almost Always	10.67	14.72
Often	32.76	35.77
Sometimes	41.89	39.27
Rarely	13.07	9.15
Never	1.61	1.09

N = 2869

Chi-squared of Independence of Partners = 157.91,  $p < .001$

	Two working partners	
Almost Always	10.70	16.10
Often	34.23	38.98
Sometimes	41.48	37.07
Rarely	12.27	7.39
Never	1.32	0.45

N = 1943

Chi-squared of Independence of Partners = 132.55,  $p < .001$

<sup>a</sup>The question is: "How often do you feel rushed or pressed for time?" The responses are: "Almost always, often, sometimes, rarely, never."

**Table 2. Means and Standard Deviations of Crucial Variables, Married/Partnered Individuals in Couples, Australia 2001**

	MEN	WOMEN
	One or two working partners	
Weekly Work Hours	43.64 (17.58)	22.97 (19.13)
Days Worked	4.84 (1.69)	3.14 (2.30)
Weekly Errands, Housework Hours	8.93 (8.40)	25.10 (16.72)
Weekly Dependent Care Hours	7.23 (10.71)	14.97 (21.83)
Gross Annual Pay (1000 \$)	41.017 (35.463)	19.287 (21.065)
Houshold Income (1000 \$)	74.269 (48.852)	
	Two working partners	
Weekly Work Hours	46.99 (14.04)	31.61 (15.33)
Days Worked	5.21 (1.18)	4.33 (1.49)
Weekly Errands, Housework Hours	8.66 (7.45)	22.35 (14.73)
Weekly Dependent Care Hours	6.54 (9.95)	12.26 (18.54)
Gross Annual Pay (1000 \$)	42.504 (33.539)	26.862 (20.563)
Houshold Annual Income (1000 \$)	80.014 (47.271)	

**Table 3. Probit Estimates of the Determinants of Time Stress, Australian Couples, 2001,  
(Dependent variable is whether stressed almost always or often)<sup>a</sup>**

	<b>ONE OR TWO WORKERS</b>		<b>TWO WORKERS</b>	
Variable: OWN	MEN	WOMEN	MEN	WOMEN
Weekly Work Hours	.00825 (.00111)	.00764 (.00133)	.00838 (.00138)	.00786 (.00141)
Days Worked	-.0062 (.0112)	-.0141 (.0111)	-.0045 (.0155)	-.0140 (.0136)
Weekly Errands, Housework Hours	-.00019 (.00148)	.00180 (.00083)	-.00051 (.00197)	.00191 (.00116)
Weekly Dependent Care Hours	.00517 (.00137)	.00089 (.00069)	.00556 (.00189)	.00012 (.00105)
Excellent or Very Good Health	-.0912 (.0249)	-.0972 (.0260)	-.0597 (.0306)	-.1296 (.0313)
<b>PARTNER</b>				
Weekly Work Hours	.00096 (.00130)	.00166 (.00112)	.00165 (.00137)	.00122 (.00137)
Days Worked	-.0089 (.0108)	.0001 (.0011)	.0034 (.0136)	-.0043 (.0154)
Weekly Errands, Housework Hours	.00078 (.00082)	.00219 (.00145)	-.00008 (.00116)	.00405 (.00195)
Weekly Dependent Care Hours	-.00007 (.00068)	.00388 (.00139)	.00045 (.00102)	-.00088 (.00193)
Gross Annual House- hold Income (1000 \$)	.00035 (.00026)	.00050 (.00026)	-.00002 (.00033)	.00072 (.00033)
Pseudo R <sup>2</sup>	.0726	.0829	.0604	.0778
Test of cross effects Chi-square(6)	p = .92	p=.01	p = .74	p = .42
N =	1868		1248	

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of being pressed for time. Standard errors are in parentheses. The equations also include an indicators of immigrant status, residence in one of the five major cities, married versus partnered, newly formed marriages or partnerships, whether the couple moved house in the past year, number of children under age 6, and number of school-age children.

**Table 4. Percent Distributions of Time Pressure, Married/Partnered Individuals in Couples, Germany 2002**

	<b>MEN</b>	<b>WOMEN</b>
One or two working partners		
Under time pressure <sup>a</sup>		
Always	5.62	5.40
Often	28.67	30.98
Sometimes	38.20	41.74
Almost Never	17.07	13.88
Never	10.44	8.00

N = 3076

Chi-squared of Independence of Partners = 417.77,  $p < .001$

	Two working partners	
Always	6.41	6.41
Often	31.44	35.98
Sometimes	40.91	42.64
Almost Never	14.05	9.87
Never	7.19	5.18

N = 1796

Chi-squared of Independence of Partners = 252.11,  $p < .001$

<sup>a</sup>The question is: "Bitte denken Sie einmal an die letzten vier Wochen. Wie oft kam es in dieser Zeit vor dass Sie sich gehetzt oder unter Zeitdruck fühlten?" [Think about the last four weeks. How often during this period did it happen that you felt rushed or under time pressure?] The responses are: "Immer, oft, manchmal, fast nie, nie." [Always, often, sometimes, almost never, never.]



**Table 5. Means and Standard Deviations of Crucial Variables, Married/Partnered Individuals in Couples, Germany 2002**

	MEN	WOMEN
One or two working partners (N = 3006)		
Weekly Work Hours	39.38 (17.59)	21.67 (18.19)
Days Worked	4.52 (1.72)	3.37 (2.34)
Daily Shopping, Eating, Cleaning Hours	1.40 (1.33)	4.10 (2.06)
Daily Dependent Care Hours	0.66 (1.28)	2.73 (4.68)
Gross Monthly Pay (€1000)	2.751 (3.048)	1.105 (1.903)
Household Gross Annual Pay (€1000)		46.107 (43.262)
Two working partners (N = 1754)		
Weekly Work Hours	44.81 (10.46)	30.83 (13.66)
Days Worked	5.12 (0.50)	4.78 (0.97)
Daily Shopping, Eating, Cleaning Hours	1.31 (1.09)	3.54 (1.70)
Daily Dependent Care Hours	0.63 (1.32)	1.97 (3.69)
Gross Monthly Pay (€1000)	3.061 (3.209)	1.582 (2.254)
Household Gross Annual Pay (€1000)		55.469 (47.518)

**Table 6. Probit Estimates of the Determinants of Time Stress, German Couples, 2002,  
(Dependent variable is whether stressed always or often)<sup>a</sup>**

	<b>ONE OR TWO WORKERS</b>		<b>TWO WORKERS</b>	
Variable: OWN	MEN	WOMEN	MEN	WOMEN
Weekly Work Hours	.00107 (.00011)	.00092 (.00010)	.00106 (.00014)	.00102 (.00013)
Days Worked	-.0344 (.0114)	-.00091 (.0074)	-.0279 (.0279)	-.0429 (.0150)
Daily Shopping, Eating Cleaning Hours	-.0021 (.0079)	.0061 (.0052)	-.0122 (.0116)	.0125 (.0081)
Daily Dependent Care Hours	-.0069 (.0083)	.0112 (.0025)	-.0030 (.0109)	.0124 (.0044)
At Least Good Health	-.1335 (.0304)	-.1448 (.0288)	-.1240 (.0116)	-.1250 (.0415)
<b>PARTNER</b>				
Weekly Work Hours	.00012 (.00010)	.00016 (.00011)	.00009 (.00012)	.00026 (.00014)
Days Worked	-.0066 (.0072)	-.0062 (.0107)	-.0349 (.0142)	-.0353 (.0279)
Daily Shopping, Eating Cleaning Hours	-.0015 (.0024)	.0042 (.0078)	-.0114 (.0079)	.0101 (.0119)
Daily Dependent Care Hours	.0034 (.0024)	.0252 (.0080)	.0082 (.0041)	.0221 (.0108)
Household Gross Annual Pay (€1000)	.00063 (.00023)	.00057 (.00021)	.00053 (.00027)	.00055 (.00025)
Pseudo R <sup>2</sup>	.0801	.0821	.0514	.0649
Test of cross effects: Chi-square(6)	p = .72	p = .03	p = .01	p = .20
N	3006		1754	

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of being pressed for time. Standard errors are in parentheses. The equations also include an indicators of residence in the former East Germany, location in a city with population above 100,000, whether a worker is self-employed, married versus partnered, newly formed marriages or partnerships, whether a child was born or left home, whether the youngest child is under 6, and a continuous measure of the number of children.

**Table 7. Probit Estimates of the Determinants of Time Stress, German Couples, 2002,  
(Dependent variable is whether stressed always or often)<sup>a</sup>**

Variable:	<b>ONE OR TWO WORKERS</b>		<b>TWO WORKERS</b>	
	MEN	WOMEN	MEN	WOMEN
Household Gross Annual Pay, 2002 (€1000)	.00014 (.00033)	.00042 (.00031)	.00007 (.0040)	.00024 (.00037)
Household Gross Annual Pay, 2000 (€1000)	.00140 (.00048)	.0111 (.0048)	.00133 (.00063)	.00222 (.00065)
Pseudo R <sup>2</sup>	.0800	.0899	.0551	.0780
N =	2451		1394	

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of being pressed for time. Standard errors are in parentheses. The equations also include all the other variables included in Table 6 except the indicator of a newly formed partnership.

**Table 8. Percent Distributions of Time Pressure, Married/Partnered Individuals in Couples, Korea, 1999**

	ONE OR TWO WORKERS	
	MEN	WOMEN
Under time pressure <sup>a</sup>		
Always	28.18	26.34
Often	42.58	42.18
Rarely	20.58	22.82
Never	8.67	8.65
N =	4,241	

Chi-squared of Independence of Partners = 689.87,  $p < .001$

	TWO WORKERS	
	MEN	WOMEN
Always	33.37	41.68
Often	44.63	42.68
Rarely	17.16	12.31
Never	4.85	3.33
N =	2,104	

Chi-squared of Independence of Partners = 458.19,  $p < .001$

<sup>a</sup>The question (in translation) is: "How often do you feel rushed or pressed for time?" The responses are: "Always, often, rarely, never."

**Table 9. Means and Standard Deviations of Crucial Variables, Married/Partnered Individuals in Couples, Korea, 1999**

	ONE OR TWO WORKERS	
	MEN	WOMEN
Market Work, Average Weekday Hours (Time Diary)	7.65 (3.86)	3.84 (4.15)
Weekly Work Hours in Survey	48.69 (24.92)	26.09 (29.04)
Household Care, Average Weekday Hours (Time Diary)	0.45 (0.93)	3.71 (1.93)
Family Care, Average Weekday Hours (Time Diary)	0.24 (0.62)	1.32 (1.70)
Annual Household Earnings (Million won)	18.34 (9.51)	
N =	4,241	
	TWO WORKERS	
	MEN	WOMEN
Market Work, Average Weekday Hours (Time Diary)	8.37 (3.10)	6.89 (3.29)
Weekly Work Hours in Survey	56.08 (18.77)	49.14 (21.23)
Household Care, Average Weekday Hours (Time Diary)	0.40 (0.81)	3.03 (1.61)
Family Care, Average Weekday Hours (Time Diary)	0.18 (0.45)	0.74 (1.09)
Annual Household Earnings (Million won)	23.64 (8.01)	
N =	2,104	

**Table 10. Probit Estimates of the Determinants of Time Stress, Korean Couples, 1999(Dependent variable is whether stressed always)<sup>a</sup>**

	<b>ONE OR TWO WORKERS</b>		<b>TWO WORKERS</b>	
Variable: OWN	MEN	WOMEN	MEN	WOMEN
Average Weekday Work Hours	.0364 (.0024)	.0471 (.0024)	.0368 (.0042)	.0544 (.0050)
Average Weekday Household Care	.0219 (.0091)	.0181 (.0046)	.0310 (.0141)	.0342 (.0091)
Average Weekday Family Care	-.0162 (.0151)	.0316 (.0057)	-.0003 (.0256)	.0168 (.0141)
<b>PARTNER</b>				
Average Weekday Work Hours	.0013 (.0026)	-.0048 (.0023)	.0036 (.0045)	-.0006 (.0043)
Average Weekday Household Care	-.0108 (.0045)	-.0014 (.0085)	-.0059 (.0084)	.0040 (.0148)
Average Weekday Family Care	.0091 (.0059)	.0211 (.0121)	.0093 (.0129)	.0380 (.0269)
Gross Annual Household Earnings (Million won)	.00482 (.00091)	.00660 (.00090)	.00271 (.00142)	.00793 (.00154)
Pseudo R <sup>2</sup>	.1021	.1805	.0531	.0788
Test of cross effects Chi-square(3)	p = .02	p = .01	p = .47	p = .46
N =	4,241		2,104	

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of always being pressed for time. Standard errors are in parentheses. Gross annual household income is calculated as 12 times monthly income imputed from a 10% sample of the Korea Occupational Wage Survey 1999. The equations also include the number of household members age 10 or over, and indicators for the presence of pre-school age children, residence in Seoul, and residence in metropolitan cities except Seoul.

**Table 11. Percent Distributions of Time Pressure, Married Individuals, United States, 1971 and 1978**

	MEN	WOMEN
One or two working spouses		
Rushed <sup>a</sup>		
Always	23.15	23.20
Sometimes	58.15	61.29
Almost Never	18.70	15.52
N =	1123	1276

Chi-squared of Independence of Distributions = 4.54, p=.11

	Two working spouses	
Always	23.70	28.12
Sometimes	59.04	62.40
Almost Never	17.26	9.48
N =	481	601

Chi-squared of Independence of Distributions= 17.25, p<.001

<sup>a</sup>In general, how do you feel about your time—would you say you always feel rushed even to do the things you have to do, only sometimes feel rushed, or almost never feel rushed?

**Table 12. Probit Estimates of the Determinants of Time Stress, Married Americans with at Least One Working Spouse, 1971 and 1978 (Dependent variable is whether always rushed)<sup>a</sup>**

Variable:	ONE OR TWO WORKERS		TWO WORKERS	
	MEN	WOMEN	MEN	WOMEN
Weekly Work Hours	.00414 (.00084)	.00376 (.00061)	.00499 (.00169)	.00175 (.00102)
Number of Children	.0111 (.0094)	.0123 (.0081)	-.0019 (.0133)	-.0076 (.0091)
Child Under Age 6	.0244 (.0281)	.0989 (.0222)	.0362 (.0421)	.0840 (.0211)
No Health Problems	.0406 (.0299)	-.0012 (.0245)	.0271 (.0446)	-.0493 (.0236)
Spouse Works	.0089 (.0251)	.0460 (.0596)	-----	-----
Gross Annual Income (\$1000)	.00182 (.00091)	.00271 (.00091)	.00269 (.00165)	.00223 (.00118)
Pseudo R <sup>2</sup>	.0555	.0760	.0414	.0692
N =	1073	1145	456	547

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of always being rushed. Standard errors are in parentheses. The equations also include indicators of residence in the South, location in an SMSA, health status, whether a worker is self-employed, of newly formed marriages, of immigrant or first-generation American, and for 1978.



**Table 13. Estimates of the Impact of Hours Worked on the Probability that Time Stress Increased, 1971 and 1978 QAL Surveys, Married Americans with at Least One Working Spouse<sup>a</sup>**

Variable	MEN (N = 134)		WOMEN (N = 165)	
	Hours 1971	Hours 1978	Hours 1971	Hours 1978
	-.0128 (.0141)	.0207 (.0111)	-.0138 (.0073)	.0166 (.0070)
Pseudo R <sup>2</sup>	.0371		.0393	

<sup>a</sup>The coefficients are the effects of a one-unit increase in hours worked on the probability of being rushed. Standard errors are in parentheses.

**Table 14. Probit Estimates of the Determinants of Time Stress, Married Americans with One or Two Working Spouses, Pooled 1971 and 1978 QAL, 1982 and 1996 GSS (Dependent variable is whether always rushed)<sup>a</sup>**

Variable	ONE WORKING SPOUSE		TWO WORKING SPOUSES	
	Men	Women	Men	Women
Gross Annual Income (\$1000)	.00052 (.00077)	.00145 (.00086)	.00066 (.00124)	.00045 (.00131)
Indicator 1978	-.0411 (.0272)	-.0640 (.0282)	-.0353 (.0450)	-.0594 (.0446)
Indicator 1982	.0075 (.0333)	.1143 (.0404)	.0142 (.0522)	.1218 (.0541)
Indicator 1996	.0575 (.0386)	.0993 (.0433)	.0463 (.0562)	.1186 (.0564)
Pseudo R <sup>2</sup>	.0354	.0668	.0337	.0499
N =	1637	1611	773	894

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of always being rushed. Standard errors are in parentheses. The equations also include all the variables included in the estimates presented in Table 12.

**Table 15. Poisson Estimates of the Determinants of Satisfaction with Income, Australian Couples 2001, German Couples, 2002, (Dependent variable is on a 10 to 1 scale)<sup>a</sup>**

	ONE OR TWO WORKERS		TWO WORKERS	
	Australia			
Variable:	MEN	WOMEN	MEN	WOMEN
Household Gross Annual Pay (\$1000)	.00128 (.00019)	.00159 (.00018)	.00130 (.00023)	.00162 (.00023)
Pseudo R <sup>2</sup>	.0160	.0198	.0151	.0176
N =	1868		1248	
	Germany			
Variable:	MEN	WOMEN	MEN	WOMEN
Household Gross Annual Pay (€1000)	.00110 (.00014)	.00108 (.00013)	.00088 (.00016)	.00085 (.00016)
Pseudo R <sup>2</sup>	.0216	.0238	.0151	.0169
N =	2992		1746	

<sup>a</sup>The coefficients are the effects of a one-unit increase in X on the probability of being pressed for time. Standard errors are in parentheses. The equations include the same other variables as included in Tables 3 and 6.