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## Has work replaced home as a haven? Re-examining Arlie Hochschild's *Time Bind* proposition with objective stress data



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### ABSTRACT

Using innovative data with objective and subjective measures of stress collected from 122 employed men and women, this paper tests the thesis of the *Time Bind* by asking whether people report lower stress levels at work than at home. The study finds consistent support for the *Time Bind* hypothesis when examining objective stress data: when participants were at work they had lower values of the stress hormone cortisol than when they were at home. Two variables moderated this association – income and children at home – such that the work as haven effect was stronger for those with lower incomes and no children living at home. Participants also, however, consistently reported higher subjective stress levels on work days than on non-work days, which is in direct contrast to the *Time Bind* hypothesis. Although our overall findings support Hochschild's hypothesis that stress levels are lower at work, it appears that combining work and home increases people's subjective experience of daily stress.

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### 1. Introduction

In 1997's *The Time Bind*, Arlie Hochschild wrote that home life had become so stressful that people were going to work to escape the strains of home. She wrote, "Home had become work and work had become home." (Hochschild, 1997: 38). A study published around that time seemed, at least partially, to support this conclusion; this was particularly so for women, finding that women reported greater positive affect while at work whereas men reported more positive emotional states at home (Larson et al., 1994). Furthermore, both studies suggested that this reversal had occurred across socio-economic status (Hochschild, 1997; Larson et al., 1994). In contrast, although not directly testing the perception of stress, more recent research has suggested that neither men nor women are voluntarily increasing their work hours to escape the burdens of home (Maume and Bellas, 2001), that both men and women have higher satisfaction levels at home than at work (Kiecolt, 2003), that those more satisfied with work or less satisfied

with home do not work more hours or desire to do so (Brown and Booth, 2002), and that people's experience of the "time bind" are closely tied to their social class and occupational status (Jacobs and Gerson, 2004).

Yet, there has been, to our knowledge, no attempts to empirically test Hochschild's *Time Bind* proposition that work may be less stressful than home, "the work as haven" hypothesis. Testing the work as haven hypothesis is a within-person question that is optimally tested with data assessing (within the same individuals over time) whether stress levels differ as individuals go from home to work and back home again. Yet, between-person data is often employed to test the hypothesis; such data are usually assessed at a single time point and therefore address a different question (e.g., do people who work the most hours have, on average, the lowest levels of stress). In other words, the between-person data does not examine the dynamic process that is proposed to occur within individuals in the *Time Bind*, but rather compares averages across people.

Although work-life conflict has been a much researched area in recent years and can be a source of chronic stress (see Bass et al., 2009; Bellavia and Frone, 2005), there has been relatively little research comparing stress levels at work to stress levels at home. For example, Larson et al. (1994) looked at mood at home and at work, but did not include measures of stress. As the majority of families with children no longer have a stay-at-home mother taking care of the domestic sphere (Bianchi et al., 2006), home life may

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be an additional source of stress and continued work. In contrast, work provides important health benefits, particularly to women, and provides additional stimulation outside of the home (Frech and Damaske, 2012; Lewis, 2003; Ross and Mirowsky, 1995). Given that work-family conflict is experienced differently across socioeconomic status (SES), gender, marital status, and presence of children in the home (Frone et al., 1992; Jacobs and Gerson, 2004; Marshall and Barnett, 1992; Sarkisian and Gerstel, 2006; Schnittker, 2007), there may be significant variation in the experience of stress at home and at work across these groups.

This paper expands on prior literature and tests the work as haven hypothesis by asking whether people experience and report lower stress levels at work than at home. Moreover, it expands on Hochschild's research by testing the proposition that the within-person relationship between location (work versus home) and stress is moderated by between-person workplace characteristics (i.e., SES/occupational status and job satisfaction) and home life demographics (i.e., gender, marital status, and the presence of children at home). In the present study, stress was measured both subjectively (using self-reports) and objectively (using the stress hormone cortisol) six times each day over a period of three days, allowing us to capture stress patterns as a function of location (work vs home). Our objective measure of stress, salivary cortisol, becomes elevated as part of the biological stress response; thus, high cortisol levels are an objective indicative of greater stress (Smyth et al., 1998). Finally, in addition to stress, we report on subjective assessments of one's positive affect as these effects may be distinct from stress (cf. Larson et al., 1994). The use of both subjective and objective measures of stress repeatedly assessed while individuals are at home and at work allows for a more complete testing of the work as haven hypothesis.

## 2. Theoretical perspectives on work-life stress

Researchers have noted that there is a "career mystique mismatch" in which work organizations' policies, practices, and norms rarely accommodate workers' responsibilities and relationships outside of work (Moen et al., 2013: 82). The demanded devotion to paid work may crowd out time for other tasks, place strain on workers, and create work-life conflict (Moen et al., 2013). Conflict between work and family is a "chronic stressor" that is associated with negative physical and emotional health outcomes (Schieman et al., 2006: 243; Schieman et al., 2009; Bellavia and Frone, 2005). Researchers have examined the direction of the strain, demonstrating that work can negatively spill over into home and home can negatively spill over into work, although spillover from work to home appears more common and deleterious (Bellavia and Frone, 2005; Grzywacz and Marks, 2000). Despite the significant interest in the ways that work and family may conflict, there has been relatively little research that has compared stress levels at work to stress levels at home, particularly within the same individuals over time. This study aims to fill this gap using ecologically valid measurement approaches. Moreover, according to the stress process model, stressors do not exist in a social vacuum, but instead stem from social roles (such as worker or caregiver), which are linked in the social structure to different groups, according to characteristics such as gender, class, and race (Pearlin et al., 1981; Pearlin, 1999; Carr and Umberson, 2013). Therefore, in our consideration of stressors at work and at home, we also consider how these stressors may vary across the population.

### 2.1. Stress at work

Paid employment is often associated with better health and well-being (Ross and Mirowsky, 1995; Frech and Damaske, 2012;

Tausig, 1999), but there are a number of factors that may create stress at work, including the demands of the job, level of job control, long work hours, and variable job hours (Heaney et al., 1994; Schieman et al., 2009; Dewa et al., 2010; Schieman and Reid, 2009). A growing body of work-family research has focused on "the stress of higher status," in which those with high status jobs (often indicated by higher occupation levels, higher educations, and higher incomes) experience greater stress in both their work and family spheres (Schieman et al., 2009; Moen et al., 2013). In this paper, we focus on occupational status, education level, income, and job satisfaction as potential moderators of the stress experienced at work.

Occupational status, education level, and income may all provide clues about the level of stress on the job (see Frone et al., 1992; Marshall and Barnett, 1992), as they are all associated with higher-status positions. Importantly, these characteristics are tied to known moderators, such as the likelihood to overwork and job authority (see Bass et al., 2009). High status jobs may bring higher levels of strain (Schieman et al., 2009). Long hours often cause strain or stress on workers and, in a reverse of most common stressors, long hours and overwork are more frequently associated with professional or managerial workers (Schieman et al., 2009; Jacobs and Gerson, 2004). Increased job authority (found in jobs with higher occupational status) is associated with higher psychological stress, anger and some poorer physical health outcomes (Schieman and Reid, 2009).

Job satisfaction may also play an important role in the level of stress at work, as many factors that might impact job satisfaction (such as pressure at work, variable work hours, and schedule fit) may moderate stress at work. Both mothers and fathers reported greater stress when they faced more pressure at work (Crouter et al., 1999). Variable hours and unexpected overwork are related to higher stress (Dewa et al., 2010). Moreover, research suggests there are important differences between "good" and "bad" jobs that have implications for people's ability to maintain employment, to have job satisfaction, and to receive health benefits from work (Damaske, 2011; Frech and Damaske, 2012). In sum, there is substantial evidence that although work brings with it some very important and measurable gains for health, it can also be a source of stress and strain for workers.

### 2.2. Stress at home

As with the workplace, many factors also influence the degree to which the home environment is stressful. Although time at home is often associated with "leisure," both work and family have been deemed "greedy" institutions that are demanding of time (Coser, 1974). Time spent on household tasks may be a source of stress as housework is often perceived to be unenjoyable, monotonous, and unrewarding (Strasser, 2000). Part of the strain at home may come from changing gender norms; the majority of both parents now work in dual-parent households, but organizations continue to operate as if workers do not have family obligations, suggesting both men and women may struggle to fulfill household tasks (or even to agree upon whose responsibility tasks are) (Hochschild, 1997; Jacobs and Gerson, 2004). In this paper, we examine gender, marital status, and the presence of children as potential moderators.

There is a gendered dimension to time at home as obligations to perform household work and childrearing typically differ by gender (Jacobs and Gerson, 2004). Although men have increased their participation in household and childcare chores, women continue to spend many more hours on both (Bianchi et al., 2006). Moreover, women (and mothers in particular) are more likely to attend to the emotional needs of family members, a process by which home

becomes both a site of “comfort and struggle” (Devault, 1999). Finally, women may have less access to leisure time than do men, particularly mothers who work full-time (Bianchi et al., 2006; Lewis, 2003). As such, we expect gender to moderate the relationship between work/family responsibilities and stress, such that women find greater relief from stress at work than do men.

Entering marriage (even without the presence of children) adds to women’s overall household labor hours (Sarkisian and Gerstel, 2006). Although “work-life” conflict is often the term used to describe strain between work and the “rest of life” (Lewis, 2003), a significant amount of research suggests that the people who face the highest levels of work-life conflict are parents (Bianchi et al., 2006; Jacobs and Gerson, 2004). Role strain suggests that being a parent creates an additional “role” that could conflict with tasks at work and may diminish one’s health while children are young (Schnittker, 2007). In other words, home may also be “work,” particularly for women and those who are married or who have dependent children at home.

### 2.3. Hypotheses

Taken together, although we know that both work and home can be sites of stress, and that the experience of stress can vary across gender, race, and class, we do not know how stress levels differ across these two domains nor how the experience of stress in one location or the other might vary across the population. This leads us to our hypotheses: Examined as within-person change across domains, people will report higher levels of stress at home than they do at work (H1). Next, education and workforce characteristics will moderate the effect observed in H1 across individuals, such that people in professional positions compared to non-professionals (H2A), with at least a college degree compared to those with less education (H2B), and with higher incomes compared to those with lower incomes (H2C) will report greater within-person differences in stress at home versus at work; in contrast those with more job satisfaction will report less stress at work than at home (H2D). Finally, home life demographics will moderate the effect observed in H1, such that women relative to men (H3A), the married compared with the unmarried (H3B), and those with children at home versus nonparents (H3C) will report greater within-person differences in stress at home versus at work.

## 3. Data and methods

### 3.1. Participants

Participants were recruited from the greater metropolitan area of a mid-sized city in the Northeast US via random calls from a local telephone directory and from public listings on a university email news alert and local event websites. The range of recruitment methods ensured that we would reach individuals across job types, thus increasing the generalizability of the sample. Each individual contacted, regardless of method, was provided the same information about participating in the study. Potential participants who met eligibility criteria were scheduled for an initial laboratory visit. Participants ( $n = 122$ ) were eligible to participate if they were: (1) over the age of 18; (2) currently employed Monday through Friday with regular working hours between 6:00am and 7:00pm; (3) not employed on weekends; (4) able to come into the research laboratory on a Wednesday evening and the following Monday; (5) fluent in English; (6) free of psychiatric therapy or drug treatment changes in the past three months; and (7) not pregnant. These exclusion criteria were set to recruit participants who are currently employed, who had a regular working schedule (thus increasing the likelihood we would capture data from a normal segment of participants’ lives),

who would be able to provide data both on days they are working and not, and could reasonably comply with the study protocol.

### 3.2. Measures

#### 3.2.1. Baseline questionnaires

Demographic information assessed included sex, age, race, education, occupational status, income, marital status, and child status. The sample was primarily female (75%) with an average age of 41.14 (SD = 11.92; range: 19–63). Full sample characteristics can be found in Table 1.

Race was recoded as White or non-White. Education was recoded into the following categories: high school graduate/GED or less, some college including vocational certification or associate degree, and completed college or more including post-college (graduate) education. Occupational status was assessed by participants indicating the type of work they do, which was then coded as either Professional (i.e., management, business, marketing, or education) or Non-Professional job types (i.e., human services, health care, maintenance/personal trade, reception/office work). Income was broken into three categories based on the following response options: low (Less than \$10,000, \$10,000–19,999, or \$20,000–29,999), middle (\$30,000–39,999, \$40,000–49,999, or \$50,000–74,999), and high (\$75,000–99,999, \$100,000–150,000, or greater than \$150,000). Marital status response options were coded as either married (married, domestic partnership) or single (single, divorced, separated, widowed). Child status was assessed by asking how many children currently live with participants, which was then recoded as having a child at home (one or more) or not.

Overall job satisfaction was assessed with the 16-item Job Satisfaction Scale (JSS; Warr et al., 1979), which assesses satisfaction toward pay, coworkers, and work conditions (e.g., “The freedom to choose your own method of working.”). Response options range from 1 (extremely dissatisfied) to 7 (extremely satisfied). This scale demonstrated good reliability in our sample ( $\alpha = .93$ ), with higher numbers indicating greater job satisfaction.

#### 3.2.2. Ecological momentary assessment (EMA)

EMA is a novel data capture method that allows repeated administration of brief self-report and other assessments as people

**Table 1**  
Sample demographics.

Variable	N	Sample characteristics		
White	120	93	77.5%	White
		27	22.5%	Non-white
Education	121	12	9.9%	H.S. degree or less
		51	42.2%	Some College
		58	47.9%	College Degree or more
Income	118	24	20.3%	Low (less than \$10,000 to \$29,999) <sup>1</sup>
		63	53.4%	Middle (\$30,000 to \$74,999)
		31	26.3%	High (\$75,000 to greater than \$150,000)
				Non-Professionals
Job type	92	55	60.0%	Professionals
		37	40.0%	Female
Gender	124	93	75.0%	Male
		31	25.0%	Married
Married	122	64	52.5%	Not Married
		58	47.5%	Has Children at Home
Children	120	60	50.0%	No Children
		60	50.0%	

Note. The “some college” category for education includes attending college but not received a degree, attending vocational school, or having an Associate’s degree. The income categories consist of the following response options: low (less than \$10,000, \$10,000–19,999, or \$20,000–29,999), middle (\$30,000–39,999, \$40,000–49,999, or \$50,000–74,999), and high (\$75,000–99,999, \$100,000–149,999, or \$150,000 or greater).

go about their everyday lives in normal settings (see Smyth and Heron, 2013). As such, this approach allows us to obtain detailed, ecologically valid data on daily experiences and stress at work and at home. EMA self-report surveys assessed participant's current location, mood, and stress six times a day. Each survey was automatically dated and time-stamped. Location was assessed with a single item (i.e., "At the time of the prompt, where were you?). Participants were instructed to select whether they were at home or at their workplace from a series of response options; participants reported being at home on 43.7% of all responses, and at work on 30.3%. Positive mood was assessed by asking how happy participants were feeling at the time of the prompt (from 0, not at all, to 6, very much). Subjective stress was similarly assessed by asking how stressed participants were feeling at the time of the prompt on a 0 (not at all) to 6 (very much) scale. Means (and SD) were: happy = 4.35 (.75) and stressed = 1.30 (.88).

### 3.2.3. Ambulatory cortisol

Participants provided saliva samples for cortisol analysis using standard salivettes (Sarstedt AG & Co, Nümbrecht, Germany) six times each day. Salivettes are small plastic tubes containing synthetic material that participants place in their mouths for approximately 90 seconds (or until saturated with saliva) and then replace in the tube. Participants were provided three prepared bags, each containing six salivettes designated for one day of use. At the end of each EMA survey, participants were reminded to provide a saliva sample and then labeled the salivette with the date and time. The saliva samples were sent to a technical lab (Dresden, Germany) to assay cortisol using standard methods. Given the non-normal distribution observed in cortisol, cortisol values are log-transformed prior to analysis. Mean (SD) log-cortisol values (nmol/l) were .53 (.19). As noted, higher levels of cortisol are a physiological indicator of higher stress levels (e.g., Smyth et al., 1998).

### 3.3. Procedures

At the initial Wednesday evening laboratory visit all participants gave consent and completed baseline materials. EMA data was collected via a Palmpilot Z22 handheld computer (Palm Inc., Sunnyvale, CA) programmed using a free, open-source software package called Experience Sampling Program (<http://www.experience-sampling.org/>). Participants were provided EMA devices and trained to complete EMA self-report surveys by practicing in the presence of a trained research assistant. Participants were also provided salivettes and trained how to properly collect and store saliva samples.

For the ensuing three days (i.e., Thursday through Saturday), EMA self-report surveys were gathered using the Palmpilot devices which they carried at all hours between waking and sleeping (with wake and sleep times pre-specified by participants). Auditory alarms signaled participants to complete six surveys each day at semi-random intervals (stratifying waking hours into roughly equal intervals); participants were also provided an on-screen reminder at the end of each EMA assessment to collect a saliva sample. During the return visit, participants returned all study materials, which were checked for completion. Base compensation for completing the study was \$100, with an additional \$20 awarded for completing all EMA survey prompts.

### 3.4. Analytic plan

As the collected EMA data have a two-level structure, with observations (Level 1) nested within individuals (Level 2), multilevel analyses were performed using the PROC MIXED command in SAS 9.3. We tested whether within-person (Level 1)

changes in location (work vs. home) were associated with within-person (Level 1) changes in mood, subjective stress, and cortisol (each outcome was tested in separate models). Follow-up analyses tested whether between-person (Level 2) workplace characteristics or home life demographics moderated the effect of location on mood, stress, and cortisol (tested by examining if the moderator by location interaction term was statistically significant). In addition, we controlled for age and race (Level 2), whether it was a workday or not, and time of day (Level 1). Although these variables were not the specific focus of this paper, controlling for them allowed us to rule out that other person or day effects could account for the results. Time of day was grouped into six three-hour blocks, ranging from 1 to 6, coinciding with the window of time each EMA prompt took place (i.e., higher values correspond to later times in the day when the EMA was taken). This time variable was included in all models, and thus helps to account for time of day-related explanations for any observed differences between work and home.

## 4. Results

### H1. The Time Bind hypothesis

As can be seen from Table 2, the participant's location did not impact positive mood. In line with the work as haven hypothesis, however, participants had lower levels of cortisol when at work compared to when those same participants reported being at home. In contrast to expectations, participants' reported subjective stress levels were higher on work days than on non-work days, and participants reported marginally more subjective stress when they were at work compared to when at home.

### H2. Workplace characteristics as moderators

We next explored whether occupational status, education, or job satisfaction moderated any of the relationships observed in Hypothesis 1 (indexed by a statistically significant interaction effect). For occupational status, having a professional versus any other job did not moderate the effect of location on mood, stress, and health (see Table 3). This may be due to the competing effects of high authority jobs, in which high authority jobs offer better pay and higher status but also greater job responsibilities and strain, leading the effects to cancel each other out (see Schieman and Reid, 2009). There continued to be an effect for subjective stress ratings such that those at work reported greater stress levels at work than home.

The results for education were similar to those for occupational status (see Table 3). Education level did not moderate the effect of location on mood, subjective stress, and cortisol. As with H1, there was a significant effect for cortisol such that those at work had lower cortisol than those same individuals at home; again, those same individuals reported greater subjective stress levels at work than at home.

**Table 2**

The impact of location (work vs. home) on positive mood, stress, and cortisol.

	Happy	Stressed	Cortisol
Age	.01 (.01)	-.01 (.01)	.00 (.001)
Race	-.50** (.17)	.57** (.21)	-.04 (.05)
Work Day	-.07 (.08)	.38*** (.11)	-.02 (.02)
Time	.07** (.02)	-.01 (.03)	-.15*** (.01)
At Work	.05 (.08)	.17+ (.10)	-.09*** (.02)

Note. + $p < .10$ , \*\* $p < .01$ , \*\*\* $p < .001$ . All models were tested on 1144 observations across 112 participants. Race (1 = White, 0 = Non-white), Work Day (1 = Work Day, 0 = Non-Work Day), and At Work (1 = Work, 0 = Home) are dichotomous variables. Time is coded to indicate the EMA interval (ranging from 1 to 6). Cortisol is log-transformed.



**Table 3**  
The impact of location, workplace characteristics (occupation, education, income, job satisfaction), and their interaction on positive mood, subjective stress, and objective stress (cortisol).

	Occupation model (H2A)			Education model (H2B)			Income model (H2C)			Satisfaction model (H2D)		
	Happy	Stress	Cort.	Happy	Stress	Cort.	Happy	Stress	Cort.	Happy	Stress	Cort.
Age	.01 (.01)	-.02 <sup>+</sup> (.01)	.002 (.002)	.003 (.01)	-.01 (.01)	.00 (.002)	.01 <sup>+</sup> (.01)	-.02* (.01)	.00 (.002)	.004 (.01)	-.01 (.01)	.00 (.002)
Race	-.36 <sup>+</sup> (.19)	.22 (.25)	-.10 <sup>+</sup> (.05)	-.52** (.17)	.58** (.21)	-.04 (.05)	-.47** (.17)	.58** (.21)	-.03 (.05)	-.47** (.16)	.54** (.21)	-.05 (.05)
Work Day	-.04 (.11)	.35** (.13)	.01 (.03)	-.06 (.08)	.36** (.11)	-.01 (.02)	-.08 (.09)	.38*** (.11)	-.02 (.02)	-.07 (.09)	.38*** (.11)	-.02 (.02)
Time	.06* (.03)	.003 (.03)	-.15*** (.01)	.07** (.02)	-.01 (.03)	-.15*** (.01)	.07** (.02)	-.01 (.03)	-.15*** (.01)	.07** (.02)	-.01 (.03)	-.15*** (.01)
At Work	.01 (.13)	.41* (.16)	-.06 (.04)	-.05 (.10)	.28* (.13)	-.09** (.03)	-.13 (.14)	.37* (.18)	-.03 (.04)	-.57 (.38)	1.46** (.47)	-.02 (.11)
Occupation	.08 (.16)	-.09 (.21)	-.06 (.05)	–	–	–	–	–	–	–	–	–
Occupation × At Work	-.02 (.16)	-.27 (.20)	-.06 (.04)	–	–	–	–	–	–	–	–	–
Education	–	–	–	.36 (.26)	-.06 (.33)	-.01 (.07)	–	–	–	–	–	–
1 = HS or less	–	–	–	-.08 (.16)	-.13 (.20)	.005 (.05)	–	–	–	–	–	–
2 = Some college	–	–	–	–	–	–	–	–	–	–	–	–
3 = BA or more (reference group)	–	–	–	.23 (.22)	-.23 (.28)	.07 (.06)	–	–	–	–	–	–
Education × At Work	–	–	–	.25 <sup>+</sup> (.14)	-.25 (.19)	-.01 (.04)	–	–	–	–	–	–
Income	–	–	–	–	–	–	.47 (.23)	-.51 <sup>+</sup> (.29)	.09 (.07)	–	–	–
1 = Low	–	–	–	–	–	–	.04 (.18)	-.04 (.22)	-.03 (.05)	–	–	–
2 = Middle	–	–	–	–	–	–	–	–	–	–	–	–
3 = High (reference group)	–	–	–	–	–	–	–	–	–	–	–	–
Income × At Work	–	–	–	–	–	–	.42* (.21)	-.61* (.26)	-.12* (.06)	–	–	–
Job Sat.	–	–	–	–	–	–	.23 (.16)	-.25 (.21)	-.07 (.05)	.07 (.08)	-.03 (.10)	-.03 (.02)
Job Sat. × At Work	–	–	–	–	–	–	–	–	–	.12 <sup>+</sup> (.07)	-.25*** (.09)	-.02 (.02)
N	84			111			108			112		
Obs	879			1133			1097			1144		

Note. <sup>+</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Stress = Subjective Stress Rating, Cort = Objective Stress Rating (Cortisol). Race (1 = White, 0 = Non-white), Work Day (1 = Work Day, 0 = Non-Work Day), At Work (1 = Work, 0 = Home), and Occupation (1 = Non-Professionals, 0 = Professionals) are dichotomous variables. Time is coded to indicate the EMA interval (ranging from 1 to 6). Education is coded into 3 categories (1 = H.S. degree or less; 2 = Some college, including vocational certificate and Associate's degree; and 3 = College degree or more, including graduate education). Income is coded into 3 categories (1 = Low: Less than \$10,000, \$10,000–19,999, or \$20,000–29,999; 2 = Middle: \$30,000–39,999, \$40,000–49,999, or \$50,000–74,999; and 3 = High: \$75,000–99,999, \$100,000–150,000, or greater than \$150,000). College degree or more and high income are specified as the comparison conditions with the presented results indicating the effect of going from a category with less education or income to college degree or high income category. Cortisol is log-transformed.

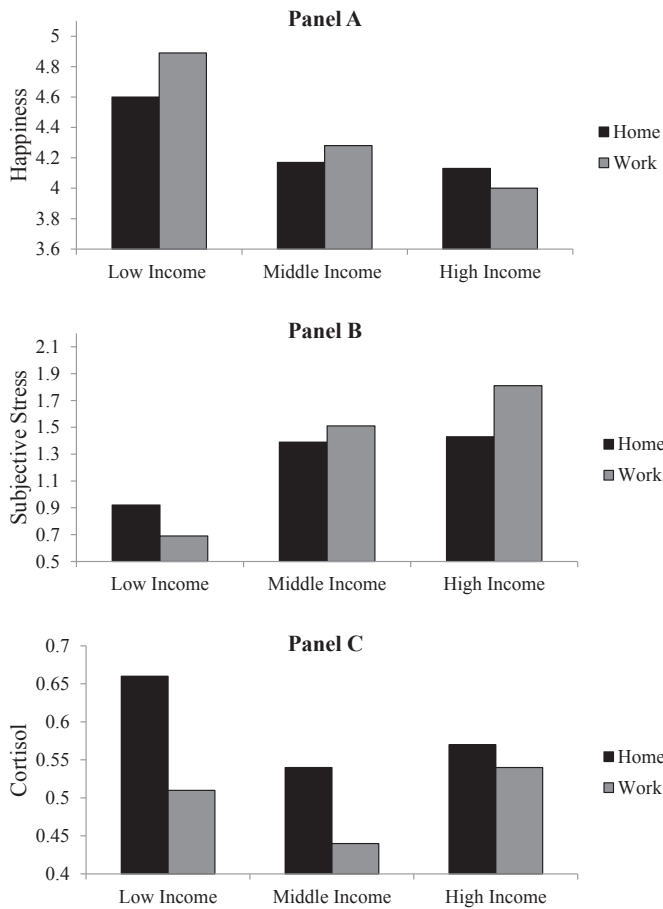


Fig. 1. The effect of location on happiness (Panel A), subjective stress (Panel B), and objective stress/cortisol (Panel C) varies by income.

Income moderated the effect of location on mood, subjective stress, and cortisol (see Table 3). To better interpret the interaction effect, we graphed the happiness (see Fig. 1 Panel A), subjective stress (see Fig. 1 Panel B), and cortisol (see Fig. 1 Panel C) means by location and income. It appears that low and middle income

individuals are happier and have lower cortisol at work than at home, whereas this trend reverses for high income individuals who are less happy and report more subjective stress at work than at home.

Finally, job satisfaction moderated the effects of location on mood and stress (see Table 3). To better understand the interaction, we divided the sample at the median into “high” and “low” job satisfaction and examined mean levels of happiness and subjective stress as a function of location and high and low job satisfaction. For happiness, mean levels were similar across groups except for individuals high in work satisfaction who reported more happiness at work than all other groups. For stress, mean levels were similar across groups except for individuals low in work satisfaction who reported more stress at work than all other groups. There were no significant moderation effects of job satisfaction on cortisol.

**H3. Home life demographics as moderators.**

We next explored if gender, marital status, or having children at home moderated the relationships observed in Hypothesis 1. Gender significantly moderated the relationship between location and happiness (see Table 4). To interpret the interaction effect we graphed the happiness mean by location and gender (Fig. 2). Men reported greater happiness when at home than at work. In contrast, women reported significantly greater happiness when at work than when at home. There were no other effects related to gender. Furthermore, a significant effect of location remained for cortisol, such that participants of both genders had lower cortisol at work than when they were at home. Moreover, the respondents’ reported stress remained significantly higher on workdays than non-workdays.

Marital status did not have any effects on mood, stress, or cortisol (see Table 4). The significant effect of location on cortisol remained, such that participants at work had lower cortisol than when they were at home regardless of marital status. Moreover, respondents’ reported stress remained significantly higher on workdays than non-workdays.

Finally, having children at home did not impact positive mood or subjective stress (see Table 4). In contrast, having children at home moderated the effect of location on cortisol. Examining cortisol means by location and children at home (see Fig. 3) it appears that, for both those with and without children, cortisol levels are lower at work than at home but that this effect is more pronounced for those without children in the home.

**Table 4**

The impact of location, home life demographics (gender, marital status, children at home), and their interaction on positive mood, subjective stress, and objective stress (cortisol).

	Gender model (H3A)			Marital status model (H3B)			Children model (H3C)		
	Happy	Stress	Cort.	Happy	Stress	Cort.	Happy	Stress	Cort.
Age	.01 (.01)	-.01 (.01)	.00 (.002)	.01 (.01)	-.01 (.01)	.00 (.002)	.01 (.01)	-.02 (.01)	.00 (.002)
Race	-.46** (.17)	.54* (.21)	-.04 (.05)	-.50** (.17)	.57** (.21)	-.04 (.05)	-.49** (.17)	.53* (.21)	-.04 (.05)
Work Day	-.07 (.08)	.38*** (.11)	-.02 (.02)	-.07 (.08)	.38*** (.11)	-.02 (.02)	-.07 (.09)	.38*** (.11)	-.02 (.02)
Time	.07** (.02)	-.01 (.03)	-.15*** (.01)	.07** (.02)	-.01 (.03)	-.15*** (.01)	.07** (.02)	-.01 (.03)	-.15*** (.01)
At Work	-.19 (.14)	.21 (.18)	-.12** (.04)	.14 (.11)	.19 (.13)	-.09** (.03)	.17 (.11)	.20 (.13)	-.14*** (.03)
Gender	-.34+ (.18)	.18 (.23)	-.02 (.05)	—	—	—	—	—	—
Gender × At Work	.32* (.16)	-.05 (.20)	.05 (.04)	—	—	—	—	—	—
Marital	—	—	—	-.06 (.16)	-.05 (.20)	.01 (.04)	—	—	—
Marital × At Work	—	—	—	-.17 (.13)	-.03 (.17)	.01 (.04)	—	—	—
Children	—	—	—	—	—	—	-.14 (.16)	.29 (.20)	-.01 (.05)
Children × At Work	—	—	—	—	—	—	-.22 (.14)	-.11 (.17)	.09* (.04)
N	112			112			110		
Obs	1144			1144			1125		

Note. +*p* < .10, \**p* < .05, \*\**p* < .01, \*\*\**p* < .001. Stress = Subjective Stress Rating, Cort = Objective Stress Rating (Cortisol), Marital = Marital Status, Children = Children at Home. Race (1 = White, 0 = Non-white), Work Day (1 = Work Day, 0 = Non-Work Day), At Work (1 = work, 0 = home), Gender (1 = Female, 0 = Male), Marital Status (1 = Married, 0 = Single), and Children at Home (1 = Yes, 0 = No) are dichotomous variables. Time is coded to indicate the EMA interval (ranging from 1 to 6). Cortisol is log-transformed.

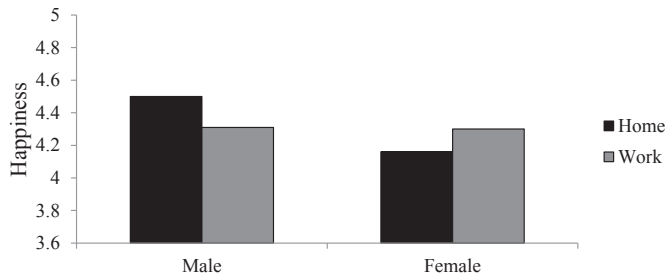


Fig. 2. The effect of location on happiness varies by gender.

#### 4.1. Follow-up analyses

We conducted two additional sets of analyses. First, we examined whether greater subjective stress on workdays is experienced by both men and women, or just by men. To test this we added a gender by workday interaction term to the model testing gender as a moderator for the effect location on subjective stress (reported in Table 4); additional analyses also examined whether there was a three-way interaction between gender, workday, and location. Neither the gender by workday nor the three-way interaction predicted subjective stress ratings. Second, we examined whether the location by children at home effect for cortisol (reported in Table 4 and Fig. 3) was more pronounced for women than men, given that women may more often be primary caregivers. To test for this effect, we re-ran the model for children at home but added the children at home by gender interaction and the three-way interaction term of location by children at home by gender. These additional interaction terms did not predict cortisol.

## 5. Discussion

The present study makes a novel contribution to the literature on work-family and stress by finding consistent support for the work as haven hypothesis when examining ecologically valid physiological stress data (using the biomarker salivary cortisol). Overall, participants had lower cortisol when they were at work than when they were at home. Two variables moderated this association – income and children at home – such that the home versus work effect was stronger for those with lower incomes and no children living at home. The remaining moderators – occupation, education, gender, and marital status – did not affect the relationship between location and cortisol. In sum, these results suggest a robust effect of being at work versus being at home on a physiological indicator of stress (cortisol) in line with Hochschild's hypothesis, but more equivocal support on other indicators (positive mood, subjective stress reports). The one consistent effect from subjective ratings was that participants reported higher subjective stress levels on work days than on non-work days, which is in direct contrast to the hypothesis that work is less

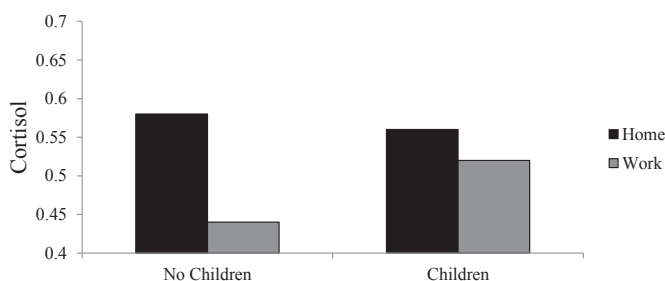


Fig. 3. The effect of location on objective stress (cortisol) varies by having children at home.

stressful than home. Importantly, our observations add theoretical and empirical refinements about the health benefits of work and the relationships between work, home, and stress. The observation that cortisol levels are lower at work provides a possible explanation for prior research findings that show continued paid work is beneficial to physical and mental health (Frech and Damaske, 2012; Tausig, 1999). Moreover, the lack of a consistent effect for self-reported mood and subjective stress suggests the importance of a multi-method approach to measuring stress that includes more objective measures of physiological stress responses.

#### 5.1. Greater stress at home than at work?

The work-family literature has consistently hinted at a paradox in the relationship between work and health—on the one hand, work tends to make people healthier (see Ross and Mirowsky, 1995; Frech and Damaske, 2012; Tausig, 1999), but on the other hand, work-family conflict can cause stress and strain (see Bellavia and Frone, 2005; Crouter et al., 1999; Grzywacz and Marks, 2000). Our research suggests that this paradox may be an enduring aspect of combining work and home life—cortisol levels decline at work, but participants feel greater stress on days in which they combine work and family life than on non-work days and report higher stress at work in some of the moderator models. There are several theoretical implications of these findings. First, although a significant number of studies have demonstrated that work is beneficial to health (Frech and Damaske, 2012; Tausig, 1999), understanding why work is beneficial has often proved elusive. We find cortisol levels are lower at work, which may, at least partly, explain some of the physical and mental health benefits of work (e.g., there may be physiological changes occurring in the body at work in addition to the presumed psycho-social health benefits of work).

Second, our research suggests that some of the stress of home may stem from the challenges of combining home responsibilities with work responsibilities. Although our overall findings are consistent with the work as haven hypothesis, it may also be that combining work and home may increase people's subjective experience of stress. These seemingly contradictory findings encourage a more complex discussion about the meaning of stress in workers' daily lives. In particular, our findings suggest research focused on the direction of work-life strain (see Bass et al., 2009) may overlook the possibility that work can be simultaneously beneficial and also intrude on home life. These findings point to the continued need to restructure work so as to reduce its intrusion on home and maximize the potential benefits received from work.

Third, these data speak directly to the theoretical debate that a high status job (at least as indicated by higher income) may be associated with greater stress (e.g., Schieman et al., 2009). In our observations, those with higher incomes reported less happiness and more stress when they were at work than they did at home. This observation provides support for the hypothesis that, despite high pay and prestige, high status jobs may come with attributes (e.g., greater demands) that are stressful and may detract from workers' health.

Fourth, job satisfaction played an important role in moderating the effects of location on mood and stress. Those with high job satisfaction and at work reported more happiness than all other groups. Those with low job satisfaction reported more stress when they were at work compared to all other groups. This builds on prior research that has found that job characteristics can greatly influence stress at work (Gareis and Barnett, 2002; Schieman et al., 2009; Dewa et al., 2010; Schieman and Reid, 2009), by showing how the combination of domain (e.g. work versus home) and the characteristics of that domain (e.g. holding a good job—see



Damaske, 2011) are separately important and mutually reinforcing. In other words, being at work if you hold a good job is especially beneficial whereas being at work if you hold a bad job is particularly detrimental.

Fifth, our findings further suggest that (unlike men) women were significantly happier at work than they were at home, supporting the work as haven hypothesis. The separate spheres theory argues that the historical division of the world of paid work to men and the world of home to women has meant that men and women are not on the same footing in the world of work (Moen et al., 2013). Although the continuing cultural implications of the separate spheres division often has negative implications for women (lower wages, occupational segregation in lower prestige positions, inability to advance in the labor force), our research suggests that women may receive greater stress-reducing benefits from work than do men. This may be explained by prior research that finds that the challenges women face in maintaining full-time work may push women out of the workplace if in less satisfactory or beneficial employment, leaving employed only women who are more satisfied with their work (Damaske, 2011). Men, on the other hand, are expected to remain employed and report marginal gains in happiness levels at home in comparison to work. No differences were observed between men and women in their self-reported stress levels (higher on work days than on non-work days), again suggesting that some of the greater stress at home comes from combining home and work, and this appears particularly true for women.

Sixth, our research finds that the relative reprieve from stress observed at work (as seen in lower levels of cortisol at work) is greater for those without children than for those with children living at home. This is not consistent with the work as haven hypothesis, wherein the presence of children in the household is one of the stressors at home and a reason that work is less stressful. Moreover, testing this via a three-way interaction with gender did not find significant results, such that women with children at home were not uniquely more likely to find work stress reducing. There are several interpretations of this finding. Perhaps there are fewer benefits of the stress-reduction of work for parents than for non-parents. Alternatively, parents may experience some stress-relief at home from the presence of their children (see Nomaguchi and Milkie, 2003).

## 6. Limitations

Despite the use of an innovative data capture approach and objective stress measurement, this study has several measurement limitations. Education, income, and occupational status may be inadequate proxies for some of the particular workplace characteristics that are associated with stress, such as high status, autonomy, steady hours, and long hours. Job satisfaction may be an inadequate proxy for pressure at work, unstable work, variable work hours, and schedule fit. We lacked a measure of “satisfaction at home” to compare to job satisfaction. We also did not measure the age of children living in the household, so we may have included older (or even adult) children living at home. Single items were used to assess positive mood and subjective stress levels to reduce participant burden, but this approach may reduce the potential reliability of these measurements. Finally, the sample was skewed predominantly female and white, which likely reduces the generalizability of our findings.

## 7. Conclusion

Ultimately, is work a haven from the stress of home? We find that a majority of participants had lower objective stress levels at

work than they did at home, as indexed by the physiological stress marker cortisol, but did not observe this effect in subjective stress reports. Supporting the stress process model, the stress-reducing benefits of work were not, however, equally distributed across social statuses. We document differences in parental status and income on cortisol levels, as well as differences in job satisfaction and gender on mood and stress. Moreover, both men and women reported higher subjective stress on work-days than on non-work days. This finding provides continued evidence of the work-family paradox—work provides benefits, but combining work and family also provides challenges. Our findings offer important insights garnered from both objective and subjective measures of stress to further refine our understanding of the relationship between work, family, and stress.

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