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## Revisiting Work Engagement from a Moderated-Mediation Vantage Point

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### ABSTRACT

This paper aimed to shed light on (1) heavy-work investment (HWI) of time and efforts as a mediational mechanism between intrinsic/extrinsic motivation (predictors) and work engagement (WE) as an outcome, and (2) the moderation effect of employment contract type (permanent vs. temporary employees) on the association between work motivation and HWI. Data from 242 high-tech subjects – engineers (68.2%) and engineering students (31.8%) – was collected. Apart from correlational relationships, only investment of effort (and not time) is a partial mediator in the relationship between extrinsic motivation and WE, but is a suppressor variable for intrinsic motivation. Moreover, the associations between intrinsic/extrinsic motivation and HWI were found stronger for temporary employees. Theoretical and practical implications and future research suggestions are discussed.

### Reevaluación de la implicación en el trabajo desde el enfoque mejor de mediación moderada

### RESUMEN

Este trabajo trata de arrojar luz sobre (1) la inversión de tiempo y esfuerzo en trabajo duro (HWI) como mecanismo mediador entre la motivación intrínseca/extrínseca (predictores) y la implicación en el trabajo como resultado y (2) el efecto moderador del tipo de contrato laboral (empleados fijos frente a temporales) en la asociación entre motivación laboral y HWI. Se recogieron datos de 242 sujetos empleados en alta tecnología, de los cuales el 68.2% eran ingenieros y el 31.8% estudiantes de ingeniería. Aparte de las relaciones correlacionales, únicamente la inversión en esfuerzo (y no en tiempo) es mediador parcial de la relación entre motivación extrínseca e implicación en el trabajo, pero es una variable supresora de la motivación intrínseca. Además, se encontró que las asociaciones entre motivación intrínseca/extrínseca y HWI eran más sólidas en los empleados temporales. Se comentan las implicaciones teóricas y prácticas, así como sugerencias para la investigación futura.

### Work Engagement (WE)

Work (or job) engagement, WE, is a relatively new concept in the research literature that is attracting a great deal of attention. WE is usually defined as, “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p. 74). Thus, engaged employees: (1) work hard (“vigor”), (2) are more involved in their work (“dedication”), and (3) are happily immersed in their work (“absorption”) (see also Bakker, Schaufeli, Leiter, & Taris, 2008; Chughtai & Buckley, 2011; Taris, van Beek, & Schaufeli, 2015).

In addition, it appears to be widely accepted that WE can develop from both “personal” factors (e.g., Basit, 2017; Latta & Fait,

2016; Sharoni, Shkoler, & Tziner, 2015) and “environmental” factors (e.g., Basit, 2017; Gyu Park, Sik Kim, Yoon, & Joo, 2017; Sharoni et al., 2015) (see also Macey & Schneider, 2008).

### Heavy Work Investment (HWI)

Snir and Harpaz (2012) introduced the important concept of heavy work investment (HWI), which encompasses two major core dimensions, namely: (1) time commitment (HWI-TC; i.e., working long hours), and (2) work intensity (HWI-WI; i.e., investing substantial effort, both physical and mental, at work) (see also Snir & Harpaz, 2015). HWI is an umbrella term comprised of many different constructs (e.g., workaholism and work addiction, passion to work),

but ultimately revolves around the devotion of time (HWI-TC) and effort (HWI-WI) at work (see [Snir & Harpaz, 2015](#), p. 6).

While there are many studies that treat the implications of working overtime (e.g., [Caruso 2014](#); [Stimpfel, Sloane, & Aiken, 2012](#)), to the best of our knowledge there have been relatively few empirical studies regarding the investment of efforts in work as an indicator of heavy work investment (e.g., [Tziner, Buzea, Rabenu, Truta, & Shkoler, 2019](#)). Hence, in the present research we address both of the core dimensions of HWI, namely, “time” (HWI-TC) and “effort” (HWI-WI).

With respect to the possible antecedents of heavy work investment such as gender, parenthood, educational level, basic financial needs, employer demands, work addiction, work devotion, passion to work, and more, [Snir and Harpaz \(2012, 2015\)](#) further differentiated between “situational” and “dispositional” types of HWI (based on [Weiner's, 1985](#) attributional framework). Situational types are exemplified by financial-needs or employer-directed contingencies (external predictors), while dispositional types are characterized by personal factors (internal predictors), such as work-motivation. Consequently, HWI may also affect various outcomes, such as health, work-family conflict, satisfaction at work, and productivity, so that under certain circumstances, HWI can thus be considered as a mediator variable (see [Snir & Harpaz, 2015](#), p. 6).

### HWI and WE

HWI may have positive effects on employees. For example, [Shamai, Harpaz, and Snir \(2012\)](#) found that average “life satisfaction” was higher among employees working more than 50 hours a week than among those working 36-50 hours per week. The researchers suggested that employees who spend more hours at work than the average worker presumably experience more flow at work than the latter employees and, hence, would be expected to report greater levels of positive affect ([Shamai, 2015](#)).

In practice, however, there is (as yet) no clear evidence regarding whether HWI links positively or negatively to WE. Consequently, one of the goals of the present investigation was to illuminate this issue. We offer the following rationale, based on “effort justification” (i.e., the “IKEA effect”; [Norton, Mochon, & Ariely, \(2012\)](#): effort justification revolves around the notion that the more effort individuals invest in some pursuit or endeavor, the more they come to value it ([Festinger, 1957](#)), an idea shared by [Norton et al. 2012](#), who intimated that “Labor alone can be sufficient to induce greater liking for the fruits of one's labor” (p. 453). Based on this premise, there are sound grounds for asserting that heavier investment in work would lead an employee to a greater sense of elation, fulfilment, and liking of the work itself, which would result in higher work engagement.

Furthermore, in contradistinction to [Shamai et al.'s \(2012\)](#) and [Shamai's \(2015\)](#) findings, we believe that the more significant affecting factor by which HWI may result in positive outcomes is the investment of effort, and *not* the length of time devoted in the workplace. The underlying reasoning behind this assertion is that while workers may allegedly spend a great deal of time on the job, in actuality they may not really be working (studiously) at their given tasks at all, a situation labelled as “presenteeism”) (see [Rabenu & Aharoni-Goldenberg, 2017](#)). In such a case, time devotion per se may not actually play a vital part in effort justification (regardless of the clear lexical semantics of the phrase), as might be expected from its HWI counterpart, effort investment. So, while we are unsure of the effect of HWI-TC on WE, we may with greater confidence hypothesize the existence of a mediating effect of HWI-WI on WE. Notably, investigating HWI with respect to its two independently identified dimensions allows us to pick up on valuable and interesting information that might otherwise be missed when HWI is construed

and examined as a total, singular construct. In sum, we identify our hypotheses in this respect as:

H1: HWI-TC correlates with WE.

H2: HWI-WI correlates positively with WE.

### Work Motivation

Work motivation is defined as the psychological force that generates complex cycles of goal-directed thought and behavior. Motivation is what animates us to persist in the pursuit of courses of action until their completion. Accordingly, scholars studying work motivation intend to unveil the processes by which an individual's internal, psychological forces – in conjunction with external, environmental forces – determine the direction, intensity, and persistence of personal behavior aimed at goal attainment ([Kanfer, 2009](#); [Kanfer, Frese, & Johnson, 2017](#)).

However, another working definition of work motivation most currently accepted reads as “a set of energetic forces that originate within individuals, as well as in their environment, to initiate work-related behaviors and to determine their form, direction, intensity, and duration” (after [Pinder, 2008](#), p. 11). It follows that work motivation results from the interaction of an individual's characteristics and outward environment components, both societal and work-organizational ([Latham & Pinder, 2005](#)). In other terms, we can regard motivation as the force which drives a person to engage in an activity.

Motivation can be viewed as a unidimensional construct, but it can be regarded as a bi-dimensional or multidimensional one as well ([Ryan & Deci, 2000](#)). For the purpose of this paper, we looked into “intrinsic” and “extrinsic” motivation, following the Self-Determination Theory paradigm (SDT; [Ryan & Deci, 2000](#)).

Intrinsic motivation is the internal drive for an individual's experiences which connect with self-concept, and are inherently interesting or enjoyable. Thus, employees work out of the excitement, feeling of accomplishment, and personal satisfaction they derive both from the process of carrying out work-related activities and the results ([Bauer, Orvis, Ely, & Surface, 2016](#); [Deci & Ryan, 1985](#); [Legault, 2016](#)).

Extrinsic motivation is influenced by the organization, the work, and the employee's environment (e.g., social norms, peer influence, financial needs, authority, or promises of reward), and is focused on the utility of the activity rather than the activity itself (see [Deci & Ryan, 1985](#); [Legault, 2016](#)). However, this does not dictate that extrinsic motivation is less effective than intrinsic motivation ([Deci, Koestner, & Ryan, 1999](#)).

It is important to clarify that the SDT theory ([Ryan & Deci, 2000](#)) specifies each type of motivation as two opposite poles of a single continuum. We agree, however, with the notion that they are mutually exclusive, as [Rockmann and Ballinger \(2017\)](#) wrote:

... there is increasing evidence that intrinsic and extrinsic motivations are independent, each with unique antecedents and outcomes... in organizations, because financial incentives exist alongside interesting tasks, individuals can simultaneously experience extrinsic and intrinsic motivation for doing their work. (p. 11).

As far as we know, the intrinsic/extrinsic division of motivation lacks coherent research, and most of the past research addressed the intrinsic aspect (e.g., [Bauer et al., 2016](#); [Rich, LePine, & Crawford, 2010](#)). In addition, motivation has been shown to be affected by personal traits, needs, and even work fit, while affecting various outcomes and attitudes, such as satisfaction, OCBs, engagement, and more (for further reading see [Tziner, Fein, & Oren, 2012](#)). As such, we would suggest a differentiating approach to motivation as was reviewed in this section, and consequently treat it as an interesting antecedent in our research.

### Intrinsic/Extrinsic Motivation and HWI

As indicated, employees may be driven by both intrinsic and extrinsic forces to work. It is safe to assume that each motivational source will result in different types of behavioral translation (i.e., HWI). Because intrinsic forces (i.e., interests, challenges, enjoyment from work) drive employees to invest in their work, we believe they will be more strongly related to an investment of effort than time devotion. However, when the workers are extrinsically driven (i.e., salary, job demands, social norms), we expect these associations to transpose, such that, rather than related to “effort”, those external drives will be more strongly related to “investment of time” (e.g., presenteeism, as mentioned above; Rabenu & Aharoni-Goldenberg, 2017). Regardless, both forces will lead an employee to heavier investment in work. Consequently, we hypothesize further that:

**H3:** Intrinsic motivation correlates positively with both HWI-TC and HWI-WI, but more so with HWI-WI.

**H4:** Extrinsic motivation correlates positively with both HWI-TC and HWI-WI, but more so with HWI-TC.

### Intrinsic/Extrinsic Motivation and WE

Although counterintuitive, there has not been, to the best of our knowledge, a paper examining the relationship between work motivation and work engagement. Of interest is that Rich et al. (2010) tested a model incorporating both intrinsic motivation and WE, but in their study both of these constructs were mediators [in the model] rather than two factors in a predictor-outcome link, thus offering a further incentive to examine the association between work motivation and WE.

One of the essential notions behind work motivation is the perception of the job as a place for fulfilling different needs, such as income and status (“extrinsic” factors) and enjoyment, and personal challenge (“intrinsic” factors). This perception, very likely, strengthens the linkage between the employee’s drive to work and the workplace itself (i.e., WE). Furthermore, as stated, engaged employees, by definition, are more enthusiastic and invested in their work (Bakker & Demerouti, 2008), and also perceive the significance of their work as more than just a source of income (Kahn 1990). Thus, we believe that the intrinsic aspect of work motivation is more closely related to WE than the extrinsic aspect but, nonetheless, they both likely increase WE. These assumptions lead us to hypothesize that:

**H5:** Intrinsic motivation correlates positively with WE.

**H6:** Extrinsic motivation correlates positively with WE.

### Intrinsic/Extrinsic Motivation, HWI, and WE

As aforementioned, work motivation (intrinsic and extrinsic) may result in heavier investment in work, as well as in higher WE. HWI may also increase the levels of WE of workers (via the effort justification; “IKEA effect”). This points to the probability that HWI may act as a mediator between motivation and WE, which is in accordance with Snir and Harpaz’s (2015) model (p. 6) and leads us to further hypothesize that:

**H7:** HWI (HWI-TC and HWI-WI) mediates the relationship between intrinsic motivation and WE.

**H8:** HWI (HWI-TC and HWI-WI) mediates the relationship between extrinsic motivation and WE.

### Contract Type – Buffering Effect

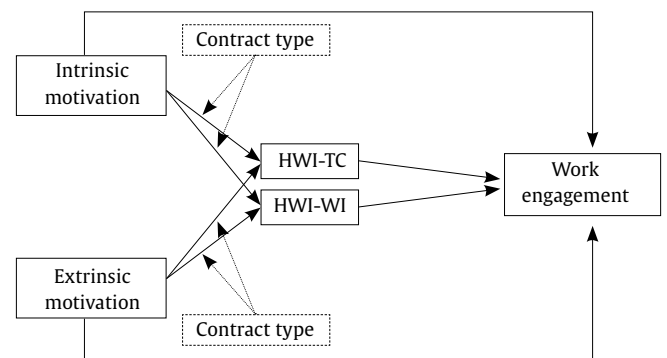
Dawson, Veliziotis, and Hopkins (2017) distinguished between temporary and permanent workers, affirming that the two categories of employees, respectively, exhibit different attitudes and behaviors at work. Temporary workers reported lower well-being than their

permanent colleagues on account of a more intense experience of job insecurity and a heightened awareness of the employment risks associated with temporary contracts. Notably, however, this finding holds for those employees forced into temporary employment, in contradistinction to temporary workers who are content with a transient work arrangement because they prefer work flexibility (for instance, for the sake of alleviating work-family conflicts). Consequent to this finding, we posit that the links of intrinsic/extrinsic motivation to heavy work investment (HWI-TC and HWI-WI) are conditioned by the type of work arrangement (contract): permanent vs. temporary, such that:

**H9:** Contract type moderates the relationship between intrinsic motivation and HWI-TC and HWI-WI.

**H10:** Contract type moderates the relationship between extrinsic motivation and HWI-TC and HWI-WI.

Figure 1 portrays the overall model.



**Figure 1.** Research Model.

Note. Contract type (1 = temporary, 2 = permanent); HWI-TC = time commitment dimension of heavy-work investment; HWI-WI = work intensity dimension of heavy-work investment.

### Purpose and Contribution of the Study

The current paper takes a more precise approach to these constructs, rather than a wholistic one, and thus aims to determine the direction, choice, and intensity of an action/motive to work. Also, we aim to explore the associations between different aspects of work motivation (intrinsic vs. extrinsic drives to work) and their outcomes, in terms of the investment of time and efforts at work, eventually leading to work engagement, and to see whether different work drives result in different behaviors at varying intensities. We have been looking into the mediational mechanism of heavy-work investment as a conductor to different work drives, each leading to experienced work engagement. Our deliberate distinction between the investment of time and efforts at work is a unique approach to this newly researched construct (Snir & Harpaz, 2015), because most extant work research has heavily dealt with consequences of working overtime, with little regard to the investment of efforts at work and their implications. In addition, the paper investigates whether these relationships might be moderated by the work contract type of the participants (work contract type by which they are employed by their organization as a “contextual variable”).

### Method

#### Participants

There were 242 participants, all Israeli engineers or engineering students in a specific high-tech company (which has requested to

remain anonymous, should the data be published publicly), 63.2% were males and 36.8% females, between the ages of 22-55 ( $M = 35.26, SD = 9.95$ ); 49.2% were single, 45.9% were married (and had between 0-6 children;  $M = 1.47, SD = 1.75$ ), and 5% were divorced. 31.8% worked under a temporary-term contract (i.e., the engineering students) while 68.2% held permanent employment contracts. The subjects were employed 0.5-19 years with the company ( $M = 5.60, SD = 4.99$ ), with 74% having no managerial role (the “non-managerials”), while 26% worked as managers. All the participants were software engineers, regardless of their work contract (students or permanent), and their work assignments were to develop new computer programs and applications as well as to detect bugs in existing ones.

**Measures**

**Work motivation** was gauged by the Work Extrinsic and Intrinsic Motivation Scale (WEIMS; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009), consisting of 18 Likert-type items ranging from 1 (*does not correspond at all*) to 6 (*corresponds exactly*). Intrinsic motivation had a high reliability ( $\alpha = .92, M = 4.14, SD = 0.89$ ; e.g., “... because I derive much pleasure from learning new things”) as did extrinsic motivation ( $\alpha = .80, M = 4.05, SD = 1.41$ , e.g., “... for the income it provides me”).

**Heavy-work investment** (HWI; see Snir & Harpaz, 2012) was tapped by 10 Likert-type items ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), 5 items for each dimension, namely, time commitment (HWI-TC; e.g., “Few of my peers/colleagues put in more weekly hours to work than I do”) and work intensity (HWI-WI; e.g., “When I work, I really exert myself to the fullest”), respectively. HWI-TC had a high reliability ( $\alpha = .85, M = 4.25, SD = 1.21$ ) as did HWI-WI ( $\alpha = .95, M = 4.98, SD = 1.08$ ).

**Work engagement** was gauged by the Utrecht Work Engagement Scale-9 (UWES-9; Schaufeli, Bakker, & Salanova, 2006) consisting of 9 Likert-type items ranging from 1 (*never*) to 6 (*always/every day*). The measure had a very high reliability ( $\alpha = .98, M = 4.11, SD = 1.43$ ; e.g., “I am immersed in my work”).

**Validity Analysis**

In addition, we also analyzed the validity capacity of the measures using SEM in AMOS. The indices are presented in Table 1.

**Table 1.** Validity Indices for the Measures Used in the Research

Measure	CR	MaxR(H)	AVE	MSV
Extrinsic motivation	.84	.89	.78	.31
Intrinsic motivation	.90	.94	.70	.29
HWI-TC	.88	.90	.80	.27
HWI-WI	.92	.96	.76	.24
Work engagement	.94	.97	.79	-

Note. CR = composite reliability; MaxR(H) = maximum reliability; AVE = average variance extracted; MSV = maximum shared variance; HWI-TC = time commitment dimension of heavy-work investment; HWI-WI = work intensity dimension of heavy-work investment.

As can be seen in Table 1, the validity analysis indicates (1) good convergent validity as all the AVE statistics are well above .50, and (2) good discriminant validity of the measures used in the research, as the  $AVE > MSV$  and  $\sqrt{AVE} >$  inter-construct correlations (the correlations between items of a certain construct) (for further reading, see Hair, Black, Babin, & Anderson, 2010).

**Common-Method Bias**

Harman’s one-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) was used to assess the degree to which inter-

correlations among the variables might be an artifact of common method variance (i.e., all items loaded on one single-factor). The first general factor that emerged from the analysis accounted only for 35.19% of the explained variance. While this result does not rule out completely the possibility of same-source bias (CMV), according to Podsakoff et al. (2003) less than 50% of the explained variance accounted for by the first emerging factor indicates that CMB is an unlikely explanation of our investigation findings. However, as this test does not provide the ultimate evidence, we employed one of the most powerful contemporary methods to explore common method variance: zero-constrains specific bias approach conceived by Archimi, Reynaud, Yasin, and Bhatti, (2018). The results displayed in Table 2 show that a measuring bias is present in our study, though it is evenly distributed (non-random), and hence it does not confound our results.

**Table 2.** Common-method Bias Tests

Specific bias	Zero-constraints			Equal-constraints		
	$\Delta\chi^2$	df	Sig.	$\Delta\chi^2$	df	Sig.
Extrinsic motivation	37.64	24	.039	30.42	20	.061
Intrinsic motivation	39.76	24	.024	26.11	20	.072
HWI-TC	36.99	24	.047	28.75	20	.108
HWI-WI	43.17	24	.007	30.41	20	.055
Work engagement	36.55	24	.050	29.63	20	.083

Note. HWI-TC = time commitment dimension of heavy-work investment; HWI-WI = work intensity dimension of heavy-work investment.

**Procedure**

A pencil-and-paper research survey was distributed to the employees in the high-tech company by a colleague working in said company. Those wishing to participate replied affirmatively and were included in the total sample. Naturally, we assured the anonymity and discretion of the participants and the data derived from the research, and also included a conscious consent question at the beginning of the survey asking for their agreement to participate in the research. No incentives were given whatsoever to the participants for their cooperation. Data analyses were conducted utilizing SPSS (v. 23) and AMOS (V. 23) software packages.

**Results**

First, we explored descriptive statistics and associations between the variables. These results are displayed in Table 3. Even though some of the correlations are relatively high, based on good convergent and discriminant validities (to be derived from inspection of Table 1), we may conclude that this collinearity does not account for the relationships between this study’s variables.

**Table 3.** Pearson Correlation Matrix for Temporary/Student Engineering Employees (below the diagonal;  $n = 77$ ) and Permanent/Full-Time Engineering Employees (above the diagonal;  $n = 165$ ), Means and Standard Deviations

	1	2	3	4	5	$M_t (M_p)$	$SD_t (SD_p)$
1. Intrinsic motivation	-	.87	.39	.29	.59	4.50 (3.98)	0.90 (0.84)
2. Extrinsic motivation	.87	-	.36	.38	.74	4.27 (3.94)	1.48 (1.36)
3. HWI-TC	.78	.85	-	.33	.30	3.85 (4.44)	1.48 (1.00)
4. HWI-WI	.47	.73	.69	-	.73	4.77 (5.07)	1.66 (1.03)
5. Work engagement	.76	.90	.76	.76	-	4.25 (4.04)	1.72 (1.28)

Note. All correlations are significant at  $p < .001$ . HWI-TC = time commitment dimension of heavy-work investment; HWI-WI = work intensity dimension of heavy-work investment. An indication of t in the mean and standard deviation columns = temporary/student group. An indication of p in the mean and standard deviation columns = permanent/full-time group.

H1: HWI-TC correlates positively with WE, for temporary/student engineering employees ( $r = .76^{***}$ ) and for permanent/full-time engineering employees ( $r = .30^{***}$ ).

H2: HWI-WI positively correlates with WE for temporary engineering employees ( $r = .76^{***}$ ) and for permanent engineering employees ( $r = .30^{***}$ ).

H3: Intrinsic motivation correlates positively with both HWI-TC for temporary engineering employees ( $r = .78^{***}$ ) and for permanent engineering employees ( $r = .39^{***}$ ) and HWI-WI for temporary engineering employees ( $r = .47^{***}$ ) and for permanent engineering employees ( $r = .29^{***}$ ). In order to assess whether the difference in correlation strength between intrinsic motivation-HWI-TC and intrinsic motivation-HWI-WI is statistically significant, we calculated Meng's  $Z$  (see Meng, Rosenthal, & Rubin, 1992) for both groups (i.e., permanent and temporary) separately. While the difference was significant in the temporary engineering employees' group ( $Z = 4.74, p = .000$ ), it was non-significant in the permanent engineering employees' group ( $Z = 1.17, p = .116$ ).

H4: Extrinsic motivation correlates positively with both HWI-TC for temporary engineering employees ( $r = .85^{***}$ ) and for permanent engineering employees ( $r = .36^{***}$ ) and HWI-WI for temporary/student engineering employees ( $r = .73^{***}$ ) and for permanent/full-time engineering employees ( $r = .38^{***}$ ). In order to assess whether the difference in correlation strength between extrinsic motivation-HWI-TC and extrinsic motivation-HWI-WI is statistically significant, we calculated Meng's  $Z$  (see Meng et al., 1992) for both groups (i.e., permanent and temporary) separately. While the difference was significant in the temporary engineering employees' group ( $Z = 2.54, p = .006$ ), it was non-significant in the permanent engineering employees' group ( $Z = -0.24, p = .404$ ).

In addition, we gauged the differences between groups (i.e., permanent and temporary) in two sets of correlations, in order to assess whether a certain association is stronger in a certain group or not. The first correlation is intrinsic motivation-HWI-TC. The difference was significant ( $Z = 4.52, p = .000$ ) such that the temporary employees group had a higher correlation strength. The second correlation is intrinsic motivation-HWI-WI. In this case, the difference was non-significant ( $Z = 1.51, p = .065$ ) between groups.

In addition, we gauged the differences between groups (i.e., permanent and temporary) in two sets of correlations, in order to assess whether a certain association is stronger in a certain group or not. The first correlation is intrinsic motivation-HWI-TC. The difference was significant ( $Z = 6.27, p = .000$ ) such that the temporary employees group had a higher correlation strength. The second correlation is intrinsic motivation-HWI-WI. The difference was significant ( $Z = 3.77, p = .000$ ) such that the temporary employees group had a higher correlation strength.

H5: Intrinsic motivation correlates positively with WE for temporary engineering employees ( $r = .76^{***}$ ) and for permanent engineering employees ( $r = .59^{***}$ ).

H6: Extrinsic motivation correlates positively with WE for temporary engineering employees ( $r = .90^{***}$ ) and for permanent engineering employees ( $r = .74^{***}$ ).

We, then, proceeded with path analyses in order to test our hypotheses including the mediation of heavy-work investment (TC and WI) in the relationship between intrinsic/extrinsic motivation and work engagement. Using the R software package (v. 3.4.1), we also employed Preacher and Kelly's (2011) method for gauging the effect size ( $\text{kappa-squared} = K^2$ ; Preacher & Kelly, 2011) of the indirect mediation effect with a confidence interval bootstrapping (with 5,000 resamples). (However, notably, the authors of a recent paper questioned the use of this effect size, which they posited might even lead to "paradoxical results"; Wen & Fan, 2015, p. 193). The findings are presented in Table 4 and Figure 2. In addition, we also made sure that we included control variables of various demographical parameters: gender, age, marital status, tenure and managerial

position (1 = no, 2 = yes). We can discern several important findings from Table 4, as follows:

The path Intrinsic Motivation→HWI-TC→WE is not significant and valid, as opposed to the path of Intrinsic Motivation→HWI-WI→WE, which is significant ( $p = .031$ ).

In addition, we see that the path Extrinsic Motivation→HWI-TC→WE is also not significant and valid, as opposed to the path of Extrinsic Motivation→HWI-WI→WE which is significant ( $p = .000$ ).

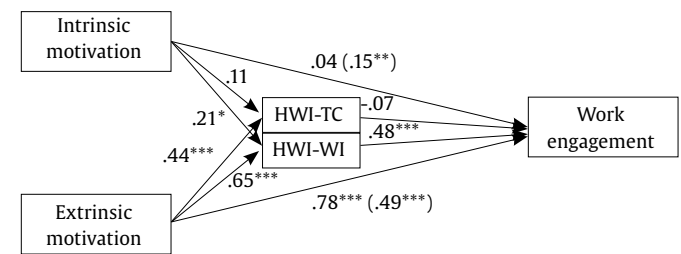
These findings highlight that HWI-TC is not a mediator between motivation and WE, but its counterpart, HWI-WI, does play the role of a mediator. These findings indicate that a heavy investment of "effort", as hypothesized, is a "partial" mediator in the relationship between extrinsic/intrinsic motivation and work engagement.

**Table 4.** Standardized Regression Coefficients with Bootstrapping for the Indirect Effect

Predictor(s)	MV <sub>1</sub>	MV <sub>2</sub>	DV <sub>D</sub> - WE	DV <sub>T</sub> - WE	LB	UB	Sig.	K <sup>2</sup>
Intrinsic motivation	.11	-.21*	.04	.15**	-.20	-.01	.031	.22
Extrinsic motivation	.44***	.65***	.78***	.49***	.18	.39	.000	.31
MV <sub>1</sub> - HWI-TC	-	-	-	-.07	-	-	-	-
MV <sub>2</sub> - HWI-WI	-	-	-	.48***	-	-	-	-

Note.  $N = 242$ . MV = mediator variable; DVD = dependent variable (direct effect); DVT = dependent variable (total effect); WE = work engagement; HWI-TC = time commitment dimension of heavy-work investment; HWI-WI = work intensity dimension of heavy-work investment; LB and UB = lower and upper bounds of 95% confidence interval (5,000 bias-corrected resamples in bootstrapping. See also Preacher & Hayes, 2008). Effect sizes using  $K^2$  with 95% CI bootstrapping with 5,000 resamples (Preacher & Kelly, 2011).

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



**Figure 2.** Research Model with Standardized Regression Coefficients for Mediation Analyses.

Note.  $N = 242$ . HWI-TC = time commitment dimension of heavy-work Investment; HWI-WI = work intensity dimension of heavy-work Investment. Coefficients in parenthesis are the total effects (including the mediators), and outside of the parenthesis - the direct effect ("pure" link without the mediators).

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Moreover, an examination of the effect size, indicated by the regression coefficients and the significance levels, indicates that these values are higher for the path Extrinsic Motivation→HWI-WI→WE than for the path Intrinsic Motivation→HWI-WI→WE. This result demonstrates that the mediation of HWI-WI is stronger with extrinsic motivation, than with intrinsic motivation (see also Table 4).

It is important to note, however, several interesting statistical anomalies that we observed in our analyses.

The bivariate correlations between intrinsic motivation to HWI-TC, HWI-WI, and WE are positive and significant (see Table 3). However, when forced in the mediation analysis with other variables: (a) intrinsic motivation does not have any effect on WE, in the presence of extrinsic motivation (see Table 3); but (b) this link becomes significant again when we include HWI-WI in the model. (We ruled out HWI-TC in a hierarchical regression analysis);

and (c) intrinsic motivation is also negatively associated with HWI-WI, again, in the presence of extrinsic motivation (see Table 3).

These findings imply that extrinsic motivation is a stronger and predominant factor in predicting WE and HWI, to the extent that in some cases intrinsic motivation loses its predictive capacity on the criterion, and in other cases intrinsic motivation transposes its direction (from positive to negative). We offer a tentative explanation in the Discussion section.

Furthermore, finding (b) above indicates that HWI-WI acts as a “suppressor” variable in the relationship between intrinsic motivation and WE. The classical definition states that a suppressor variable has no relationship with the criterion yet, nonetheless, the suppressor variable increases the correlation between the independent variable and the criterion (Pandey & Elliott, 2010; Tzelgov & Henik, 1991). However, a suppressor is defined by its effects on other variables, and may or “may not” be related to the criterion (see Pandey & Elliott, 2010). In actuality, the suppressor variable suppresses the outcome-irrelevant variance (“noise”) of the predictor on the criterion, thus “clearing” the explained variance by the said predictor. Such a unique effect cannot be seen in simple bivariate analyses; consequently, we employed a hierarchical regression, as mentioned above (for further reading, see Pandey & Elliott, 2010; Shkoler, Rabenu, & Tziner, 2017; Tzelgov & Henik, 1991). Furthermore, we agree with Paulhus, Robins, Trzesniewski, and Tracy (2004), who argue that a better term for a suppressor variable is an “enhancement variable” (p. 303). These considerations led us to the question as to why HWI-WI acts as a suppressor variable on the Intrinsic Motivation→WE relationship. To resolve this entanglement further, we provide a theoretical explanation (see Discussion section).

**Examination of Hypotheses 9-10**

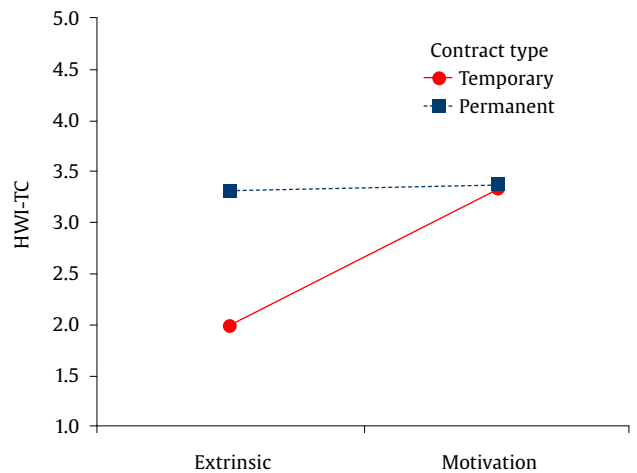
To test further the hypotheses that the associations between intrinsic/extrinsic motivation and heavy work investment (time and effort) are moderated by the type of contract (permanent vs. temporary), we used path analysis in AMOS. The findings are presented in Table 5.

As shown in Table 5, the interaction effects (3 out of 4) are significant, which is the most essential and important part of moderation analysis (see Shkoler et al., 2017). The only interaction effect which was not significant is intrinsic motivation × contract type in predicting HWI-TC. Figures 3-5 portrays the moderation effects.

**Table 5.** Standardized Regression Coefficients for Predicting HWI-TC and HWI-WI

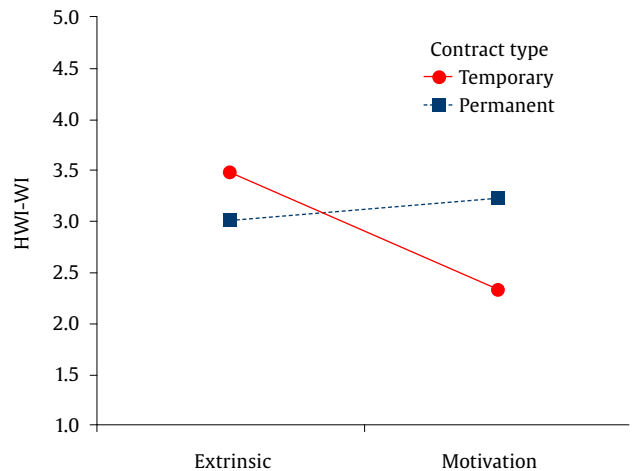
DVs	HWI-TC		HWI-WI	
	b	t-test	b	t-test
Predictors				
Intrinsic motivation	.22	2.76**	-.22	-2.43*
Extrinsic motivation	.35	4.47***	.67	7.67***
Contract type <sup>1</sup>	.34	6.80***	.11	1.92
INT <sub>1</sub> (intrinsic motivation × contract)	.01	0.16	.34	3.43***
INT <sub>2</sub> (extrinsic motivation × contract)	-.32	-3.70***	-.47	-4.77***

Note. N = 242. DVs = dependent variables; HWI-TC = time commitment dimension of heavy-work investment; HWI-WI = work intensity dimension of heavy-work investment; INT = interaction effect. <sup>1</sup>Contract type (1 = temporary, 2 = permanent). Fit indices for the model indicating fit in the absolute sense (see Byrne, 2010):  $\chi^2(df) = 6.71(4)$ ,  $p = .152$ ,  $\chi^2/df = 1.67$ , SRMR = .05, CFI = 1.00, NFI = .99, GFI = .99, RMSEA (90% CI) = .05 (.00-.12),  $p\text{-close} = .392$ . \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



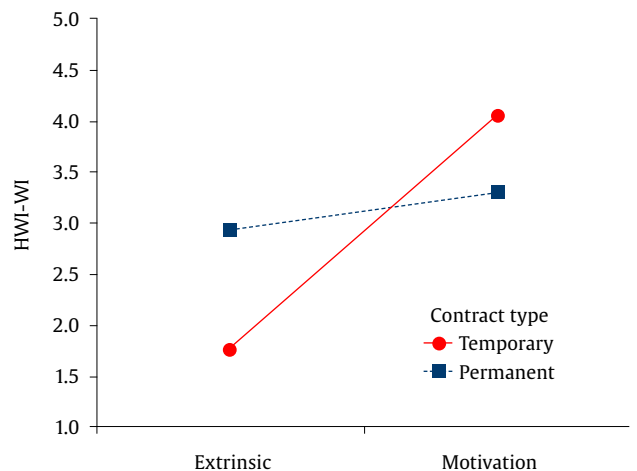
**Figure 3.** Interaction Effect between Extrinsic Motivation × Contract Types on HWI-TC.

Note. HWI-TC = time commitment dimension of heavy-work investment.



**Figure 4.** Interaction Effect between Intrinsic Motivation × Contract Types on HWI-WI.

Note. HWI-WI = work intensity dimension of heavy-work investment.



**Figure 5.** Interaction Effect between Extrinsic Motivation × Contract Types on HWI-WI.

Note. HWI-WI = work intensity dimension of heavy-work investment.

As shown in Figure 3, the association between extrinsic motivation and HWI-TC is stronger for employees working on a temporary-term contract, than those working on permanent type of contract.

As shown in [Figure 4](#), the association between intrinsic motivation and HWI-WI is “negative” for employees working on a temporary-term contract and “positive” for those working on permanent type of contract.

As shown in [Figure 5](#), the association between extrinsic motivation and HWI-WI is stronger for employees working on a temporary-term contract than those working on a permanent type of contract.

## Discussion

The aim of the current paper was to shed light on (1) HWI as a mediational mechanism between intrinsic/extrinsic motivation (as predictors) and WE (as an outcome) (see [Snir & Harpaz, 2015](#), p. 6), and (2) the moderation effect of employment contract type on the association between motivation and HWI.

Although almost all of the “bivariate” correlational hypotheses (*H1-H6*, with *H3-H4* being a slight exception) were supported initially (see [Table 3](#)), further investigation into the “multivariate” mediation hypotheses (*H7-H8*) reveals more intricate and complex relationships.

### Bivariate-Correlational Hypotheses (*H1-H6*)

With regard to the “direct” associations between intrinsic/extrinsic motivation and work engagement, all of our hypotheses were supported (see [Table 3](#)). In addition to our rationale in the theoretical background of the research, we also offer the following possible explanation: one of the essentials behind work motivation is the perception of the job as a place for fulfilling different needs, such as income, enjoyment, and personal challenge. This perception, very likely, strengthens the linkage between the employee's drive and the workplace itself (i.e., WE). However, we speculate that the job is indeed a source for fulfilling workers' needs, and given that this expectation is de facto met, it becomes clear that a stronger connection is forged between employees and their jobs, that is to say, between work motivation and WE.

### Mediation Analyses (*H7-H8*)

The hypotheses for the mediation of HWI (TC and WI) in the relationship between intrinsic/extrinsic motivation and WE were partially supported by the empirical data (see [Table 4](#)), whereby HWI-WI emerged as a “partial” mediator. However, these findings should be interpreted with care, because several statistical anomalies emerged while performing the mediational analyses. First, we observed that the bivariate correlations between intrinsic motivation to HWI-TC, HWI-WI, and WE are positive and significant (see [Table 4](#)). However, when forced in the mediation analysis with other variables: (1) intrinsic motivation does not have any effect on WE, and (2) is also negatively associated with HWI-WI – all in the presence of extrinsic motivation (see [Table 4](#)). This suggests that extrinsic motivation has a very unique impact on the model for which we offer the following tentative explanation:

The sample is comprised of engineers or engineering students in a high-tech company. The “extrinsic” incentives (i.e., high salary/money, social benefits, etc.) may be predominant. We assume that these extrinsic incentives are instrumental in supplying the participants' needs, which are perceived as important for them (see also [Adams, 1965](#); [Lawler, 1971](#)). This, in conjunction with the notion that extrinsic motivation might diminish, or even annul, the intrinsic drive to work (see [Bandura, 1989](#); [Deci, 1976](#); [Ryan & Deci, 2000](#)), may explain why the extrinsic aspect of work motivation has an overwhelming presence in our model. This is true to such an extent that intrinsic motivation loses its predictive capacity over

the criterion, and even transposes its direction of association (from positive to negative) with the mediator (HWI-WI).

Another anomalous finding is the “suppression effect” (or, rather, enhancement effect; [Paulhus et al., 2004](#)) of HWI-WI for intrinsic motivation (see Results section). Thus, as indicated above, in the presence of extrinsic motivation, intrinsic motivation has no effect on WE. However, when we introduce HWI-WI (i.e., the investment of mental and /or cognitive effort in work) into the model, we notice that this link becomes positive and statistically significant (as was the case regarding the “bivariate” correlations in [Table 3](#)), “even” in the presence of extrinsic motivation. What, then, has an investment of effort to do with being engaged at work via an intrinsic work drive? We speculate that this occurrence is associated, again, with the “IKEA effect” ([Norton et al., 2012](#)) or effort justification: those who invest more effort in their endeavors will, increasingly, come to like (and value) their pursuits ([Festinger, 1957](#)). Accordingly, those workers who invest more effort in their work will eventually start liking the work itself, which is one of the fundamentals of intrinsic motivation (working out of enjoyment and self-fulfillment; [Bauer et al., 2016](#); [Deci & Ryan, 1985](#); [Legault, 2016](#)), thus inducing the workers to feel more engaged in their tasks. This finding, coupled with the non-significant relationship between the investment of time (HWI-TC) and WE, supports our hypothesis that the investment of effort – and *not* the devotion of time – is key for the “IKEA effect” – for the liking of one's pursuit.

We reaffirm that the rationale for asserting the existence of the mediation effects may be that work motivation drives employees to invest more in their work. The behavioral manifestation of these drives (intrinsic and extrinsic) is heavier investment in work (i.e., HWI). The HWI may be actualized in a similar fashion to a circular cognitive decision-making process (e.g., [Peter & Olson, 2008](#), p. 48; [Wang & Ruhe, 2009](#), p. 138), whereby the HWI is rewarded through positive feedback, thus strengthening the linkage to the work itself (i.e., WE), which is in itself the source for drive: the stronger the linkage, the greater the drive, and the higher the investment in work, which as an asset becomes a more worthwhile investment for the highly driven employee.

### Moderation Analyses (*H9-H10*)

The hypothesized moderations of contract type (temporary vs. permanent) on the relationships between intrinsic/extrinsic motivation and HWI (HWI-TC and HWI-WI) were mostly supported by our data (see [Table 5](#)). Contract type was a significant moderator in the following links: (1) Extrinsic Motivation→HWI-TC; (2) Intrinsic Motivation→HWI-WI; and (3) Extrinsic Motivation→HWI-WI; but not in the Intrinsic Motivation→HWI-TC relationship.

Additionally, several further, interesting results emerged, worthy of note. We observed that for those who work under a permanent contract, the relationship between motivation and HWI does *not* vary much across analyses (see [Figures 3-5](#)). For permanent employees, the slope (i.e., the association between the variables) has a very obtuse angle (almost parallel to the X axis), indicating very weak (positive) relationships between the said variables. However, for temporary workers, the situation is very different: regarding temporary workers, extrinsic motivation leads to increased HWI-TC and HWI-WI, but at the same time, intrinsic motivation leads workers to invest *less* efforts in work (i.e., decreased levels of HWI-WI). These findings support our previous speculation that intrinsic drives are overwhelmed by the extrinsic ones. Regardless of these findings, the main issue is that temporary workers are much more susceptible to organizational (i.e., mostly extrinsic) incentives. They react better to extrinsic incentives and may even work from a more predominant extrinsic drive force.

The meaning of these findings is that temporary workers virtually actuate more of their working drives into the behavioral

expressions of their drives to work, thus investing heavier in them. This may be so because temporary workers are keener on proving themselves to the organization toward the end-goal of being recruited as permanent employees. Hence, those who have less occupational security are more likely to translate their drive to work into actual HWI. Nevertheless, in today's economy, in which "occupational sense of security" appears to be declining, it seems plausible that in the future the moderated association between motivation and HWI, found in our paper, will diminish in strength or even dissipate entirely. This argumentation finds support in recent publications (e.g., Koene, Galais, & Garsten, 2014; Neuner, 2013; Weil, 2014).

## Implications

**Theoretical implications.** Our research adheres to the very few studies that have tested and validated Snir and Harpaz's (2015) model concerning the mediational mechanism of HWI between various predictors (e.g., addiction to work, motivation, etc.) and outcomes (e.g., well-being, satisfaction, etc.), with regards to specific moderators (e.g., fairness, work environment, etc.). Our findings support the model. There are, however, several important implications to our study, the importance of which go beyond the replication of Snir and Harpaz's (2015) model.

We discovered that extrinsic motivation may overwhelm intrinsic drives to work (for engineers or engineering students). This supports the notion that extrinsic motivation might diminish, or even annul, the intrinsic drive to work (see Bandura, 1989; Deci, 1976; Ryan & Deci, 2000), and points to the crucial balancing of differentiating incentives at work (extrinsic vs. intrinsic).

In addition, we received a mild support to our hypothesis that rather than the devotion of time, it is the investment of effort that is key for the "IKEA effect", i.e., for "the liking of one's pursuit" (Norton et al., 2012).

With respect to the employment contract type, it seems plausible that employees' differentiating perceptions of the work context may affect their "readiness" to translate a drive to work to actual heavy-work investment.

**Practical implications.** If work engagement is an organizational goal towards which many workplaces strive, their respective managers may very well need to enhance employees' work motivation, thus increasing the employees' propensity for translating that motivation into actual HWI.

Moreover, organizations may endeavor to create a medium of "controlled uncertainty" in the job situation, especially among permanent workers (in contrast to "occupational certainty" that so often leads to stagnation). This uncertainty, as we have observed, may well fuel workers' motivation, thus inducing them, again, to express their drive through heavier investment in their work.

## Limitations

Our sample was comprised singularly of engineers and engineering students in a high-tech company. We would thus recommend replicating this study with employees that are representative of other, varying types of occupations and from a variety of organizational settings. Also, our data is cross-sectional. Consequently, we could not examine the processes through which work motivation evolves to WE in time (e.g., "IKEA effect"; Norton, et al., 2012) and, concurrently, we were unable to detect the factors which may affect these processes. Nonetheless, Spector (2019) asserts that the cross-sectional design should be considered "an efficient and invaluable go-to tool for investigating organizational phenomena" (p. 136) no less valuable than the longitudinal designs. Hence, as the present study proposes to shed light on a scarcely investigated theme, we believe that at

this stage the cross sectional design that we used has adequately accomplished its stated goal.

## Future Research

We suggest conducting longitudinal studies, incorporating other potential moderator variables (such as work ethic, cultural values, and gender) and further investigating processes – that we enumerated in the discussion section – as likely to connect work motivation to WE. It is also safe to assume that the associations we discovered in the research would be dependent on which industry we focus on (e.g., high-tech, low-tech, marketing, service).

Although we may posit that both motivation types, extrinsic vs. intrinsic, are mutually exclusive, the literature suggests that they may also interact with each other, generating different results. We suggest that future research be pursued to further explore this outcome.

Notably, we did not at all examine one specific and important aspect of the effort justification processes (Festinger, 1957; Norton et al., 2012) through which "labour leads to love" (Norton et al., 2012, p. 453), namely, the degree or level of the perceived success of one's efforts. We deem it safe to assume that when workers receive negative feedback concerning their work on the job, which can be described as "non-successful" efforts, their labours will most likely not lead to likeness of their pursuit and certainly not to the extent that "successful" efforts would achieve. We strongly recommend that future research be directed towards these processes, which will (1) provide further insights as to the intricate and intimate processes through which workers' efforts may lead to likeness of their work, and (2) may help organizations to better manage their employees.

## Conflict of Interest

The authors of this article declare no conflict of interest.

## Note

<sup>1</sup>This approach consists of two major steps in exploring common-method bias. Firstly, a variable/construct is chosen as a specific bias (SB) in contrast to the others, and then a zero-constraints test is calculated. This test identifies the prevalence of a measuring bias, so that if this test is non-significant, we may conclude that a measuring bias has not contaminated the data. However, when this test is statistically significant, then we may infer that this bias is indeed prevalent, and hence a second test must be employed. This test (an equal-constraints test) assesses the null-hypothesis that the detected measuring bias is evenly distributed (non-random), so that if this test is non-significant, we may assume that the bias has not distorted our results.

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