

Kumulative Dissertation zum Themengebiet:

**Evaluation of Continuous Vocational Training
Using Microeconomic Methods
– Studies in Applied Settings, a Quasi-Experimental Survey
Analysis, and Conceptual Considerations.**

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- **Hinerasky, C. and Fahr, R. (2014a):** When the Early Bird Catches the Worm: The Impact of Training in Retail. EconPapers Working Paper No. 2015-06, University of Paderborn, Faculty of Business Administration and Economics, Germany.
- **Hinerasky, C. and Fahr, R. (2014b):** Learning Outcomes, Feedback, and the Performance Effects of a Training Program. EconPapers Working Paper No. 2015-07, University of Paderborn, Faculty of Business Administration and Economics, Germany.
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Evaluation of Continuous Vocational Training Using Microeconomic Methods

– Studies in Applied Settings, a Quasi-Experimental Survey Analysis, and Conceptual Considerations.

Introduction and Overview

Despite extensive research on continuous vocational training, there is still a degree of scepticism about the causal relationship between participation in training and its aim of improving individual or firm performance. Alliger et al. (1997, p. 346) denote that “most training efforts are incapable of directly affecting results level criteria” such as productivity gains, cost-savings, or profitability. Wright and Geroy (2001, pp. 586–587) even relate the belief that increased amounts of workplace training lead to higher productivity to a myth that has managed to become “one of the fundamental philosophical underpinnings of Western business”. The research in this dissertation addresses this topic by investigating the performance effects of continuous vocational training by the use of advanced econometric models. By that, this thesis summarizes, analyzes, and evaluates the results of previous studies and conducts research that addresses fundamental empirical questions that many earlier studies omit. While a large amount of studies find large positive performance effects of training, there are some empirical results that confirm a weak or non-existent relationship. Using a representative German dataset (SOEP), Pischke (2001) finds no effect of formal continuous training on wages in the 4 years following training. Jürges and Schneider (2006) take the same data to analyze long-term wage effects of training over 20 consecutive years, and they also find no causal relationship. Similar results have been found by Görlitz (2011) and Fahr, Hinerasky, and Simons (2014). On the contrary, there is a vast amount of literature that finds strong and large-sized positive training effects (Acemoglu and Pischke, 1999; Bassanini et al., 2007; Tharenou, Saks, and Moore, 2007). To understand these

ambiguous observations, Fahr, Hinerasky, and Simons (2014) give an in-depth examination of some of the reasons that may explain these various findings: the empirical method used, the type of training measure and aim of training, training funding, the amount and duration of training, the length of the observational period, and, especially, unobservable individual heterogeneity. In order to achieve an accurate evaluation measure, therefore, either comprehensive amounts of data have to be collected, especially when the aim is to classify previous results, or the focus of the analysis has to be reduced to a selected aspect. For example, to reduce methodological issues that stem from heterogeneity between the training participants, and in order to achieve a high degree of homogeneity, Aragon and Valle (2013) restrict their sample to managers of Spanish firms when analyzing the performance effects of training. Similarly, Hinerasky and Fahr (Hinerasky and Fahr, 2014a, 2014b) focus on one company's sales managers, who each lead their own store but offer a nearly identical product portfolio to all customers, thereby achieving very good organizational comparability. Besides individual and organizational heterogeneity, program heterogeneity provides grounds for ambiguous findings of training effectiveness. This is the case when various types of training are analyzed without distinguishing between their respective purposes (preserving productivity, enhancing productivity, or preparing for new job requirements), and between the training forms used that naturally incorporate diverse requirements to promote learning transfer into the workplace. As the estimation method plays an important role in retrieving accurate estimates, recent econometric insights have to be consulted in order to tailor the econometric strategy to fit the data's characteristics (see e.g. Angrist and Pischke, 2009). This thesis combines the managerial and psychological concepts of training provision with advanced econometric methods that, in addition to the econometric essentials, allow to control for unobserved omitted factors which have biased previous estimates.

The first paper, *Hinerasky (2014)*, combines the unique views on training and training evaluation from the fields of psychology, education, economics, and econometrics. Based on Kirkpatrick's goal-oriented taxonomy, which evaluates the outcome and success of training on the basis of the four criteria of reaction, learning, behavior, and results (Kirkpatrick, 1979), this study outlines how these streams of literature complement each other and offer new conceptual perspectives on the different levels of training evaluation. This leads to a better understanding of the factors that impact learning and its transfer process and, in turn, can fill in the gaps in the underlying theoretical considerations. Insights into the learning process from psychology and educational science open the "black box" within Human Capital theory (DeGrip and Sauermann, 2013, p. 29) by explaining how an increase in productivity can result from learning and permanent transfer and provides important leverage for the application of trainings in companies. Such causal relation between learning and productivity can be achieved through targeted training design that focuses on the permanent transfer of learned material into the workplace. While transfer on the individual level is mostly influenced by an individual's

cognitive ability (Blume et al., 2010) that naturally can not be influenced internally or externally, there are environmental factors which affect the motivation to transfer, and transfer itself. Environmental factors that consist of a supportive work environment, and peer and supervisory support, are unique to each organization and training application; these factors require a company to design their individual transfer systems. This insight is equally important for research scholars and economic decision-makers, whose (performance-oriented) interest lies in addressing low retention rates and the successful transfer of training, in order to keep a financial balance. While the immediate results of training are often measured positively after participation, companies have to analyze their internal structures to facilitate and improve the permanent transfer of training and ultimately enhance firm performance. Guiding organizations in their training evaluation efforts, evaluation surveys need to expand from retrieving training satisfaction to more specific questions on training utility. Subjective assessments of the learning amount and training success should be replaced by objective assessments, and applied microeconomic methods can be used in order to quantitatively assess training effectiveness. Future research lies in the integration of dynamic evaluation concepts and the adoption of selection on unobservables (Altonji, Elder, and Taber, 2008, 2005) into the standard regression analysis routine. This will help to quantify training results more precisely and to better understand the characteristics that lead individuals to participate in training, leading to the successful transfer of learning content. While empirical results offer new perspectives on the understanding and further development of the underlying theoretical models, educational and psychological insights into the learning process can be used to adapt training programs in order to support participants in their individual learning behaviors and to create a valuable base for the important transfer of knowledge into the workplace.

The second paper, *Hinerasky and Fahr (2014a)*, focuses its analysis on the timing of training effects and the consequences of attendance requirements on training outcomes. The performance effects of a long-term training program are evaluated with monthly data on sales revenue for 4 consecutive years among 500 sales managers of a large retail chain that offers a nearly identical product portfolio to all customers. Therefore, the data set has several key features that are particularly suitable for a detailed econometric analysis of the question of who benefits from company training, how, and when. While it is mandatory for every manager to eventually participate in the 6-month training program, the performance effects of training are found to differ with the (unobserved) heterogeneity of training participants. While the managers continue their regular work during participation, volunteering members of initiating cohorts show positive performance effects during training, while members of later cohorts show negative performance effects during and after training. This implies for the provision of training that, with a first-come, first-served strategy, those with the highest talent and the highest prospects of success will self-select into early-participation. Mandatory participation may even cause negative productivity effects. This is in line with previous findings on pretraining perceptions, which show that following the individual's assessment of whether or not to participate in an offered

training has great importance for training transfer (Baldwin and Magjuka, 1991). The findings, secondly, indicate the importance of providing training in the form of light, continuous on-the-job training rather than intense time-limited programs. This calls for finding new ways to make company training part of the everyday work life rather than condensing the learning contents into a few training incidences.

The third paper, *Hinerasky and Fahr (2014b)*, incorporates a feedback measure that accompanies training completion into the empirical analysis and evaluates job performance effects when participants receive feedback on their training success based on a final exam. It is clear, that in assessing their own abilities, individuals frequently compare their performance with that of others (McFarland and Miller, 1994)¹, indicating that different relative performance levels produce different reactions. Feedback, especially performance coaching and performance feedback, has been shown to have a positive effect on transfer motivation in a corporate training context (Gegenfurtner et al., 2009). However, when studying the process of feedback, it remains unclear “when social support is supportive and [...] under which conditions it fails or is not important” (Weisweiler et al., 2013, p. 24), as recipients of a tentative grade may react with depressed performance. We find that training increases the sales of very successful participants (based on the final exam) by 8% already during and by 7% after training completion. Unsuccessful participants react with a significant drop in sales performance after the experience of underachievement. These findings indicate that indirect (de-) motivating effects of training from feedback can be much more important for performance, as compared to direct human capital formation. While the motivational aspects bring about a push in performance for high performers, the participation in a training program has two types of detrimental effects for low performers. Their sales performance goes down already during the training, potentially because they have to allocate time and effort from the regular sales task, and, in addition, are strongly demotivated from the negative feedback on their training results. Studying the timing of performance effects during the long-term e-learning training shows that the performance effects are highest when preparing for the final exam. This suggests that the benefit of the final examination at the end of the training program needs to be carefully traded against the negative effects it may trigger through its inherent performance feedback.

The fourth paper, *Fahr, Hinerasky, and Simons (2014)*, empirically evaluates wage returns to company training using representative individual-level, cross-sectional data for the years 2000, 2003, and 2007 with a comparison group approach. We study possible reasons for the large returns to training, compared to returns to education, by accounting for individual heterogeneity, skill level, the form of training and its funding, and the duration and amount of training. When studying the

¹ This behavior is also referred to as “social comparison of abilities” (Festinger, 1954).

performance effects of work-related training, common empirical methods rest upon the assumption of random selection into training programs to calculate the true training effects. In fact, however, it is clear that companies neither opt for nor aim to fulfil the necessary econometric assumptions. To fully eliminate selection effects, we use information on already-enrolled training participants, who eventually were prevented from taking part because of a random event. Constructing such a control group allows us to estimate a clean treatment effect, which, under specific homogeneity assumptions, may even be interpreted as the average treatment effect of training. Nonetheless, we obtain a valid point estimate for training participation, which may, however, not be generalized to the overall population (Angrist, 2004). Comparing the wages of non-participants, who were willing to participate in training but were held back from participation out of random reasons, with wages of training participants, we find no effects for training whatsoever. The findings indicate that typically measured returns to training are rather returns to unobserved characteristics such as innate ability, personality, or cognitive and non-cognitive skills. True returns to company training are lower or even zero, once an appropriate control for selection into training is implemented. This study contributes to the classification and generalization of our findings and previous findings.

References

- Acemoglu, D., Pischke, J.-S., 1999. The Structure of Wages and Investment in General Training. *Journal of Political Economy* 107, 539–572.
- Alliger, G.M., Tannenbaum, S.I., Jr, W.B., Traver, H., Shotland, A., 1997. A meta-analysis of the relations among Training Criteria. *Personnel Psychology* 50, 341–358.
- Altonji, J.G., Elder, T.E., Taber, C.R., 2005. Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools. *Journal of Political Economy* 113, 151–184.
- Altonji, J.G., Elder, T.E., Taber, C.R., 2008. Using Selection on Observed Variables to Assess Bias from Unobservables when Evaluating Swan-Ganz Catheterization. *American Economic Review: Paper and Proceedings* 98, 345–350.
- Angrist, J.D., 2004. Treatment effect heterogeneity in theory and practice. *Economic Journal* 114, C52 – C83.
- Angrist, J.D., Pischke, J.-S., 2009. *Mostly Harmless Econometrics: an Empiricist’s Companion*. Princeton University Press.
- Aragon, I.B., Valle, R.S., 2013. Does training managers pay off?. *The International Journal of Human Resource Management* 24, 1671–1684.
- Baldwin, T.T., Magjuka, R.J., 1991. Organizational Training and Signals of Importance: Linking Pretraining Perceptions to Intentions to Transfer. *Human Resource Development Quarterly* 2, 25–36.
- Bassanini, A., Booth, A., Brunello, G., De Paola, M., Leuven, E., 2007. Workplace Training in Europe., in: *Education Training Europe*. With Andrea Bassanini et al. Oxford and New York: Oxford University Press, OECD and CEPN, U Paris XII, pp. 143–323.
- Blume, B.D., Ford, J.K., Baldwin, T.T., Huang, J.L., 2010. Transfer of training: A meta-analytic review. *Journal of Management* 36, 1065–1105.
- DeGrip, A., Sauermann, J., 2013. The effect of training on Productivity: The transfer of on-the-job training from the perspective of economics. *Educational Research Review* 8, 28–36.
- Fahr, R., Hinerasky, C., Simons, S., 2014. Wage Returns of Company Training - Evidence from a Comparison Group Approach. *EconPapers Working Paper No. 2015-08*, University of Paderborn, Faculty of Business Administration and Economics, Germany.
- Gegenfurtner, A., Veermans, K., Festner, D., Gruber, H., 2009. Motivation to transfer training: An integrative literature review. *Human Resource Development Review* 8, 403–423.
- Görlitz, K., 2011. Continuous Training and Wages: An Empirical Analysis Using a Comparison-Group Approach. *Economics of Education Review* 30, 691–701.
- Hinerasky, C., Fahr, R., 2014a. When the Early Bird Catches the Worm: The Impact of training in retail. *EconPapers Working Paper No. 2015-06*, University of Paderborn, Faculty of Business Administration and Economics, Germany.
- Hinerasky, C., Fahr, R., 2014b. Learning Outcomes, Feedback, and the Performance Effects of a Training Program. *EconPapers Working Paper No. 2015-07*, University of Paderborn, Faculty of Business Administration and Economics, Germany.

- Jürges, H., Schneider, K., 2006. Dynamische Lohneffekte beruflicher Weiterbildung. Eine Längsschnittstudie mit Daten des SOEP. Tagungsband des Bildungsökonomischen Ausschusses des Vereins für Socialpolitik 2004/2005. Weiss, M. (Ed.). Berlin.
- Kirkpatrick, D.L., 1979. Techniques for Evaluating Training Programs. *Training & Development Journal* 33, 78.
- McFarland, C., Miller, D.T., 1994. The Framing of Relative Performance Feedback: seeing the Glass as half empty or half full. *Journal of Personality and Social Psychology* 66, 1061–1073.
- Pischke, J.-S., 2001. Continuous Training in Germany. *Journal of Population Economics* 14, 523–548.
- Tharenou, P., Saks, A.M., Moore, C., 2007. A review and critique of research on training and organizational-level outcomes. *Human Resource Management Review* 17, 251–273.
- Weisweiler, S., Nikitopoulos, A., Netzel, J., Frey, D., 2013. Gaining insight to transfer of training through the lens of social psychology. *Educational Research Review* 8, 14–27.
- Wright, P.C., Geroy, G.D., 2001. Changing the mindset: The training myth and the need for world-class performance. *The International Journal of Human Resource Management* 12, 586–600.

Synopsis

Publication	Hinerasky, C. (2014): Advances in Training Evaluation – Psychological, Educational, Economic, and Econometric Perspectives on the Kirkpatrick Model. EconPapers Working Paper No. 2015-05, University of Paderborn, Faculty of Business Administration and Economics, Germany.
Abstract English	Research on the process of training evaluation has progressed in many independent fields. In our study, we combine the unique views on training, and training evaluation from the fields of psychology, education, economics, and econometrics. Psychology and education provide knowledge on how to conduct training, and they emphasize important individual and environmental factors that may facilitate the transfer of skills and prevent skill decay. However, empirical methods offer a sound way of not only testing the underlying theoretical hypotheses, such as Human Capital theory in economics or psychological cognitive theories, but also quantifying individual and operational performance effects. With this multidisciplinary approach, we are able to rethink existing views on the underlying learning mechanisms and generate new insights into this complex and multifaceted economic subject of returns to training.
Abstract German	Die Literatur zur Evaluation von Training entwickelte sich in verschiedenen Forschungssträngen weitestgehend unabhängig. Unsere Studie verbindet die spezifischen Blickwinkel der Psychologie, Bildungswissenschaften, Ökonomie und Ökonometrie auf Trainingsmaßnahmen und Trainingsevaluation. Die Psychologie und Bildungswissenschaften untersuchen z.B. die Konzeption von Trainings und identifizieren individuelle und umgebungsbedingte Faktoren, die den Transfer von Fähigkeiten unterstützen und den Abbau von Fähigkeiten verhindern. Empirische Methoden ermöglichen dagegen nicht nur das Testen der zugrundeliegenden theoretischen Modelle, wie die Humankapitaltheorie der Ökonomie oder Kognitive Theorien der Psychologie, sondern auch die Quantifizierung individueller und operativer Performance Effekte. Im Rahmen dieses multidisziplinären Ansatzes werden bestehende Annahmen der zugrunde liegenden Lernmechanismen überdacht und neue Einblicke in das komplexe und vielfältige ökonomische Themengebiet der Erträge von Training geschaffen.
Contribution of joint work with co-authors	This work is single-authored.
Conferences/	-

Workshops	
Scientific Dissemination	<ul style="list-style-type: none">- Work on this paper started in January 2014- First Draft: October 2014- Paper was submitted to “International Journal of Training and Development” in December 2014.

Publication	Hinerasky, C. and Fahr, R. (2014a): When the Early Bird Catches the Worm: The Impact of Training in Retail. EconPapers Working Paper No. 2015-06, University of Paderborn, Faculty of Business Administration and Economics, Germany.
Abstract English	We econometrically evaluate the performance effects of a six month e-learning programme in a large retail chain with monthly data on organizational level sales revenue, for four years using panel regressions. Members of initiating cohorts show positive performance effects during training and, dependent on the estimated specification, after training, which is not the case for succeeding participants. We conclude that offering training on voluntary basis leads participants with the highest expected idiosyncratic gains and the highest talent to self-select into early participation. As performance effects already unfold during training, our findings put forward the importance of continuous training with close coaching unlike single training incidences.
Abstract German	Wir evaluieren die Performance Effekte eines sechs-monatigen E-Learning Trainings einer großen Einzelhandelskette, mit monatlichen Umsatzzahlen auf Filialebene, über vier Jahre mit Panelregressionen. Die Teilnehmer früher Kohorten zeigen positive Trainingseffekte während Trainingsteilnahme und, abhängig von der geschätzten Spezifikation, auch nach Trainingsteilnahme. Nachfolgende Kohorten weisen hingegen keine Trainingseffekte auf. Daraus schließen wir, dass ein Trainingsangebot auf freiwilliger Basis dazu führt, dass Teilnehmer mit dem höchsten erwarteten idiosynkratischen Gewinn und dem größten Talent sich selbst in eine frühe Teilnahme selektieren. Dass Trainingseffekte bereits während Trainingsteilnahme auftreten, zeigt die Wichtigkeit von kontinuierlichem Training mit engmaschigem Coaching im Vergleich zu einzelnen in sich abgeschlossenen Trainingsmaßnahmen.
Contribution of joint work with co-authors	<ul style="list-style-type: none"> - Co-authorship with Prof. Dr. René Fahr - Brainstorming jointly - Empirical strategy jointly developed - Descriptive statistics by C. Hinerasky - Probit regressions, OLS and Fixed Effect regression with clustered standard errors, Mann Whitney U-test statistics, Wooldridge test for first order serial correlation AR(1), Ordered Logit regression, Robustness tests by C. Hinerasky. - Write-up of paper by C. Hinerasky. Feedback, comments and corrections by R. Fahr.
Conferences/ Workshops	The paper was presented by C. Hinerasky at the following conferences and workshops:

	<p>8/2011: Conference- “European Economic Association & Econometric Society EEA ESEM”, University of Oslo, Norway.</p> <p>3/2009: Conference- „12. Personalökonomisches Kolloquium“, University of Wien, Austria.</p> <p>2/2009: Workshop- “Fakultätsforschungsseminar der Universität Paderborn“, Braunlage, Germany.</p>
<p>Scientific Dissemination</p>	<ul style="list-style-type: none"> - Work on this paper started in October 2008 - First Draft: January 2010 - Published Draft: October 2011 as IZA Discussion Paper No. 6037, Bonn, Germany. - Revise and resubmit to LABOUR in 2014

Publication	Hinerasky, C. and Fahr, R. (2014b): Learning Outcomes, Feedback, and the Performance Effects of a Training Program. EconPapers Working Paper No. 2015-07, University of Paderborn, Faculty of Business Administration and Economics, Germany.
Abstract English	We empirically evaluate the job performance effects of a 6 month part-time training program in a large retail chain, in which participants received feedback on their training success based on a final exam. The data's quasi-experimental structure allows comparison of sales revenue of trained and untrained managers before, during and after the training. We find that the training significantly increases sales of very successful participants by approximately 8% during and by 7% after the training period. However, the training has a substantial negative impact on the post-training sales performance of unsuccessful participants. The results indicate that the indirect motivational effects of training programs may be much more important than the direct effects of skill acquisition.
Abstract German	Wir evaluieren die Effekte eines sechs-monatigen Trainingsprogramms auf die Arbeitsproduktivität der Filialleiter einer großen Einzelhandelskette. Die quasi-experimentelle Struktur der Daten ermöglicht den Vergleich der Umsatzzahlen von trainierten und untrainierten Filialleitern vor, während und nach der Trainingsteilnahme. Basierend auf einer Abschlussprüfung erhalten die Teilnehmer Feedback über ihren Trainingserfolg. Das Training steigert den Filialumsatz sehr erfolgreicher Teilnehmer während des Trainings um ca. 8 % und nach der Trainingsperiode um 7 %. Jedoch hat die Trainingsteilnahme einen signifikant negativen Effekt auf die Filialumsätze post Training bei weniger erfolgreichen Teilnehmern. Die Ergebnisse weisen darauf hin, dass indirekte Motivationseffekte wichtiger sein können als direkte Trainingseffekte durch den Erwerb von Fähigkeiten.
Contribution of joint work with co-authors	<ul style="list-style-type: none"> - Co-authorship with Prof. Dr. René Fahr - Brainstorming jointly with R. Fahr and Dirk Sliwka - Empirical strategy by C. Hinerasky and R. Fahr - Descriptive statistics by C. Hinerasky - Wooldridge test for serial correlation of the error term, cross-sectional time-series Fixed Effects models with first-order autoregressive disturbance term FE AR(1) by C. Hinerasky - Write-up of paper by C. Hinerasky. Feedback, comments and corrections by R. Fahr. Minor corrections by D. Sliwka.
Conferences/ Workshops	The paper was presented by C. Hinerasky at the following conferences and workshops:

	<p>2/2010: Workshop- „Swiss Leading House on the Economics of Education / Ph.D. Course Personnel and Labor Economics for Education Economists”, University of Zurich, Switzerland.</p> <p>11/2009: Conference- „7. Jahrestagung des Arbeitskreises für Empirische Personal- und Organisationsforschung AKempor“, Ruhr-Universität Bochum, Germany.</p>
<p>Scientific Dissemination</p>	<ul style="list-style-type: none"> - Work on this paper started in October 2008 - First Draft: July 2009 - Paper was submitted to the Journal “Human Resource Management Journal“ in December 2014

Publication	Fahr, R., Hinerasky, C. and Simons, S. (2014): Wage Returns of Company Training – Evidence from a Comparison Group Approach. EconPapers Working Paper No. 2015-08, University of Paderborn, Faculty of Business Administration and Economics, Germany.
Abstract English	We empirically evaluate wage returns to company training using representative individual-level cross-sectional data for the years 2000, 2003, and 2007. A comparison group approach allows comparing wages of participants with non-participants, who were willing to participate in training, yet were restrained out of random reasons. For training participants, we identify a 7.5% wage premium compared to non-participants, which vanishes once the comparison group is restricted to employees enrolled for training who finally declined participation. The results indicate that typically measured returns to training programs may in fact be returns to unobserved characteristics such as innate ability, personality or cognitive and non-cognitive skills.
Abstract German	Mit empirischen Schätzungen evaluieren wir die Lohneffekte von betrieblicher Weiterbildung anhand repräsentativer Querschnittsdaten auf individueller Ebene für die Jahre 2000, 2003 und 2007. Der Lohnvergleich zwischen Teilnehmern und Nicht-Teilnehmern wird ermöglicht durch den Vergleichsgruppen-Ansatz, bei dem eine Vergleichsgruppe aus Nicht-Teilnehmern gebildet wird, die zwar an einer Trainingsmaßnahme angemeldet waren, jedoch aufgrund von zufälliger Gründe nicht am Training teilnehmen konnten. Im Vergleich zu allen Nicht-Teilnehmern weisen Teilnehmer einen Gehaltsunterschied von +7.5 % auf. Dieser Unterschied verschwindet jedoch bei einer Vergleichsgruppe aus Nicht-Teilnehmern, die angemeldet waren aber absagten. Die Ergebnisse legen nahe, dass die oftmals gemessenen großen positiven Trainingseffekte in Wirklichkeit die Erträge unbeobachtbarer Charakteristika, wie angeborener Fähigkeit, Persönlichkeit oder kognitiver und nicht-kognitiver Kompetenzen widerspiegeln.
Contribution of joint work with co-authors	<ul style="list-style-type: none"> - Co-authorship with Prof. Dr. René Fahr and Sabine Simons - Data preparation by S. Simons and C. Hinerasky - Wage imputation and out-of-sample prediction by C. Hinerasky - Empirical strategy: replication of a comparison-group approach - Empirical analysis: T-test Statistics, OLS regressions, Ordered Logit regressions by R. Fahr and C. Hinerasky - Write-up of paper by R. Fahr and C. Hinerasky. Literature overview by S. Simons.
Conferences/	A previous version of this paper was presented by R. Fahr at the

Workshops	<p>following conferences:</p> <p>3/2008: Conference- “11. Kolloquium zur Personalökonomie”, University Bonn, Germany.</p> <p>7/2008: Workshop- “ZEW Seminar”, University Mannheim, Germany.</p> <p>5/2010: Conference- “72. Pfingsttagung des Verbands der Hochschullehrer für Betriebswirtschaft e.V.“, University Bremen, Germany.</p>
Scientific Dissemination	<ul style="list-style-type: none"> - The work on this paper originally started in December 2006. C. Hinerasky’s work on this paper started in June 2012. - First Draft: January 2014 - Paper was submitted to “Empirical Economics” in December 2014