UNIVERSITY OF HOHENHEIM
FACULTY OF BUSINESS, ECONOMICS AND SOCIAL SCIENCES

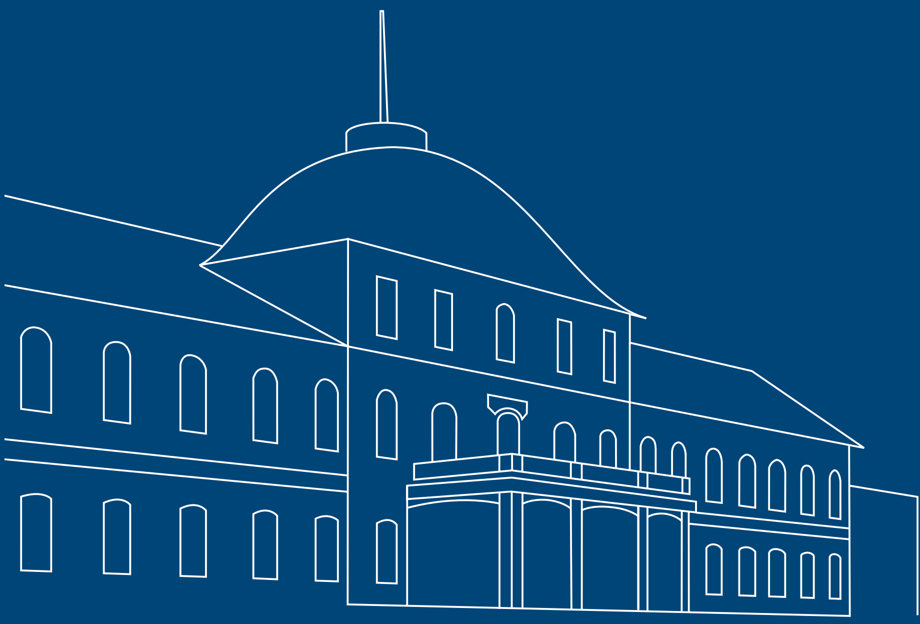
HOHENHEIM DISCUSSION PAPERS
IN BUSINESS, ECONOMICS AND SOCIAL SCIENCES

Institute of Economics

DISCUSSION PAPER 18-2016

THE IMPLICATIONS OF AUTOMATION FOR ECONOMIC GROWTH AND THE LABOR SHARE

Klaus Prettner
University of Hohenheim



State: October 2016

www.wiso.uni-hohenheim.de

Discussion Paper 18-2016

The implications of automation for economic growth and the labor share

Klaus Prettner

ISSN 2364-2076 (Printausgabe)
ISSN 2364-2084 (Internetausgabe)

The implications of automation for economic growth and the labor share

Klaus Prettner[a]

a) University of Hohenheim
Institute of Economics
Schloss, Osthof-West
70593 Stuttgart, Germany
email: klaus.prettner@uni-hohenheim.de

Abstract

We introduce automation into a standard model of capital accumulation and show that (i) there is the possibility of perpetual growth, even in the absence of technological progress; (ii) the long-run economic growth rate declines with population growth, which is consistent with the available empirical evidence; (iii) there is a unique share of savings diverted to automation that maximizes long-run growth; (iv) the labor share declines with automation to an extent that fits to the observed pattern over the last decades.
JEL classification: O11, O33, O41.
Keywords: automation, robots, machine learning, perpetual economic growth, declining labor share, inequality.

1 Introduction

Automation has already taken over many (and will take over even more) of the tasks for which at least a small amount of labor input had been necessary in the past. For example, in the car industry, robots perform many production steps in an autonomous way; 3D printers are producing customized products with a minimal labor input; devices based on machine learning are already able to diagnose some diseases, to translate texts between different languages, and to write simple newsflashes and reports; moreover, driverless cars and lorries are soon expected to transport passengers and goods from location A to location B without having to rely on the driving skills of humans (cf. The Economist, 2014; Abeliansky et al., 2015; Lanchester, 2015; Brynjolfsson and McAfee, 2016).

To get a glimpse on the macroeconomic consequences of these developments, we introduce automation into the standard framework of Solow (1956). We show that (i) similar to Steigum (2011), perpetual growth is possible in such a framework even in the absence of technological progress; (ii) the long-run economic growth rate declines with population growth, which is consistent with the available empirical evidence; (iii) there is a unique share of savings diverted to automation that maximizes the long-run growth rate of the economy; and (iv) the labor share declines with automation. According to our calculations, the introduction of automation as it has been observed in the data between the 1970s and the 2010s implies a reduction of the aggregate labor income share by around 5.5 percentage points, which is roughly in line with the observations reported by Karabarbounis and Neiman (2014). Considering the fact that capital income is typically much more unevenly distributed than labor income, this could have led to an increase in inequality as observed in most developed countries over the last decades.

The main policy conclusion that emanates from our analysis is that it might be very useful to design a compensation scheme for the losers of automation technologies. Doing so could help to distribute the potentially enormous gains of automation more evenly among various parts of the society and thereby to reduce the resistance to automation. Such a strategy could allow to adopt automation technologies, while, at the same time, to keep inequality in check.

2 The model

Consider an economy with three production factors, labor, traditional capital (machines, assembly lines, etc), and automation capital (robots, 3D printers, etc). Time t evolves continuously and the workforce grows at rate n. Traditional capital and automation capital can be accumulated and they depreciate at rate δ. Labor and machines are imperfect substitutes, while automation capital is – by its definition – a perfect substitute for labor.

There is a continuum of firms with each of them having access to a Cobb-Douglas production function of the form

$$Y(t) = A(t)[L(t) + P(t)]^{1-\alpha} K(t)^{\alpha}, \tag{1}$$

where $Y(t)$ is aggregate output, $L(t)$ refers to labor, $K(t)$ denotes the stock of traditional capital, $P(t)$ denotes the stock of automation capital, α is the elasticity of final output with respect to traditional capital, and $A(t) \equiv 1$ refers to the level of technology, which we deliberately normalize to 1. The reason for this normalization is that one of our central result, the potential for perpetual long-run economic growth due to automation, is best illustrated by abstracting from a second source of long-run growth such as technological progress. Peretto and Saeter (2013) analyze the effects of endogenous investments into R&D that increases the elasticity of output with respect to capital, α. In the long-run limit of their model, α tends to 1 such the production structure resembles those of an AK-type of growth model in which perpetual growth based on physical capital accumulation becomes feasible. Furthermore, during the transition toward the long-run limit, the labor share decreases in their framework.

Due to perfect competition, the factor rewards implied by Equation (1) are given by

$$w(t) = (1-\alpha)\left[\frac{K(t)}{L(t)+P(t)}\right]^{\alpha} \qquad r(t) = R(t) - \delta = \alpha\left[\frac{L(t)+P(t)}{K(t)}\right]^{1-\alpha} - \delta, \tag{2}$$

where $w(t)$ is the wage rate, $r(t)$ is the interest rate, and the owners of robots are compensated by $w(t) - \delta$.

The economy is closed and we abstract from a government such that output is used for consumption $C(t)$ and savings $S(t)$ according to $Y(t) = C(t) + S(t)$. In such a setting, savings are equal to investment $I(t)$ to the extent that $I(t) = S(t) = sY(t)$, where s is the exogenous constant savings rate. In contrast to the standard Solow (1956) model, investments can be made in terms of two different forms of capital: traditional capital and automation capital. For simplicity, we assume that a share s_m of savings is diverted to investment in traditional capital and a share $1 - s_m$ is diverted to investment in automation. Altogether, this setup yields the following accumulation equations:

$$\dot{K}(t) = s_m I(t) - \delta K(t), \qquad \dot{P}(t) = (1 - s_m) I(t) - \delta P(t). \tag{3}$$

Using the production function (1), the growth rates of both types of capital can be written as

$$\frac{\dot{K}(t)}{K(t)} = s_m s \left[\frac{K(t)}{L(t)+P(t)}\right]^{-(1-\alpha)} - \delta, \tag{4}$$

$$\frac{\dot{P}(t)}{P(t)} = (1-s_m)\, s \frac{1+[P(t)/L(t)]}{P(t)/L(t)} \left[\frac{K(t)}{L(t)+P(t)}\right]^{\alpha} - \delta. \tag{5}$$

Output per worker is given by

$$y(t) = \frac{Y(t)}{L(t)} = [1+p(t)]^{1-\alpha} k(t)^{\alpha}, \tag{6}$$

where lowercase letters refer to variables in terms of per worker units, i.e., for any variable $X(t)$ we have that $x(t) = X(t)/L(t)$. In the Appendix we show that the following dynamic system fully describes the evolution of the economy

$$\begin{aligned}\dot{k}(t) &= s_m s[1+p(t)]^{1-\alpha} k(t)^{\alpha} - \delta \frac{K(t)}{L(t)} - nk(t),\\ \dot{p}(t) &= (1-s_m)s[1+p(t)]^{1-\alpha} k(t)^{\alpha} - \delta \frac{P(t)}{L(t)} - np(t),\end{aligned}$$

and that the economy converges to a path along which traditional capital per worker, automation capital per worker, and GDP per worker all grow at the common constant rate

$$g = s \cdot s_m^{\alpha}(1-s_m)^{1-\alpha} - \delta - n. \tag{7}$$

If the first term on the right hand side is large (e.g., because of a large enough savings rate), this growth rate is positive. The solution for which Equation (7) is zero or negative resembles the standard properties of the steady state in the Solow (1956) model, where the long-run economic growth rate is zero. From now on we focus on the solution for which Equation (7) is positive. Altogether, this affords the following proposition.

Proposition 1. *If automation is considered as a perfect substitute for labor in the Solow (1956) model, then*

(i) there is the potential for perpetual economic growth driven solely by capital accumulation;

(ii) if there is perpetual long-run growth, the long-run growth rate decreases with the rate of population growth;

(iii) if there is perpetual long-run growth, the growth rate of the economy increases with the share of savings that is used for automation (traditional capital) as long

as the fraction of savings diverted to traditional capital is larger (smaller) than the elasticity of output with respect to traditional capital.

Proof. Parts (i) and (ii) follow immediately by inspection of Equation (7). For the proof of part (iii) we calculate the derivative of g with respect to s_m:

$$\frac{\partial g}{\partial s_m} = s \cdot s_m^{\alpha-1}(1-s_m)^{-\alpha}(\alpha - s_m).$$

We see that this expression is positive if $\alpha - s_m$ is positive and it is negative if $\alpha - s_m$ is negative. □

Part (i) of the proposition contrasts with the standard neoclassical growth model without technological progress in which the rate of long-run growth is zero. The reason for perpetual growth in our case is that automation is a perfect substitute for labor, which helps to overcome the diminishing marginal product of traditional capital installed in the form of machines and assembly lines. This result is also present in the interesting work of Steigum (2011) on robot technology in an optimal growth model and it is consistent with the empirical result of Graetz and Michaels (2015) who find that the intensification of the use of industrial robots boosts growth of productivity.

Part (ii) of the proposition is explained by the fact that, since the diminishing marginal product of physical capital in the standard model is overcome by the use of automation, variables that reduce the overall accumulation rate of physical capital – such as capital dilution due to population growth – also reduce the long-run economic growth rate. In contrast to the positive effect of population growth on long-run economic growth as found in the semi-endogenous growth theory (see, for example, Jones, 1995), our result is consistent with the available empirical evidence for developed countries throughout the 20th Century (cf. Brander and Dowrick, 1994; Kelley and Schmidt, 1995; Ahituv, 2001; Li and Zhang, 2007; Herzer et al., 2012).

The intuition for part (iii) of the proposition is the following. A reduction in the share of gross investment diverted to traditional capital would lead, ceteris paribus, to a *reduction* in economic growth. However, the reduction in the share of gross investments diverted to traditional capital comes with a corresponding increase in the share of gross investments diverted to automation. The latter would, ceteris paribus, lead to an *increase* in economic growth. If the fraction of gross investments diverted to machines is larger (smaller) than the elasticity of final output with respect to traditional capital, the reduction in growth due to a lower accumulation rate of machines is smaller (larger) than the corresponding increase in the rate of economic growth due to an increase in the accumulation rate of automation. Consequently, economic growth is maximized if $s_m = \alpha$.

Next, we turn our attention to the implication that the introduction and initial adoption of automation has on the labor income share of an economy. In our case, aggregate labor income is given by

$$w(t)L(t) = (1-\alpha)\left[\frac{K(t)}{L(t)+P(t)}\right]^{\alpha} L(t), \tag{8}$$

which implies that the labor income share pins down to

$$\frac{w(t)L(t)}{Y(t)} = (1-\alpha)\frac{L(t)}{L(t)+P(t)}. \tag{9}$$

We immediately see that the accumulation of automation capital reduces the labor income share in such a setting and summarize this finding in the following proposition.

Proposition 2. *If we consider automation in a standard Solow (1956) model, an increase in the stock of automation capital reduces the labor income share of the economy.*

The intuition for this finding is the following. From the production technology it is obvious that the wage rate decreases and the capital rental rate increases, if, ceteris paribus, the stock of automation capital increases. Since the income that is generated by automation is used to compensate capital owners, this implies that the capital income share increases and the labor income share declines. To put it differently, automation competes with labor and therefore its widespread adoption reduces wages, while, at the same time, the income that automation generates is channeled to the capital owners. Consequently, our framework proposes a complementary way of explaining the empirical finding of a decreasing labor income share in most developed countries over the last decades (see, for example, Karabarbounis and Neiman, 2014, for a discussion and for complementary channels).

3 Numerical assessment

In this section we illustrate the trajectories that are implied by our model for parameter values that are either taken from the literature or that are implied by the data for the United States (cf. World Bank, 2015). We set the gross savings rate s equal to the average gross domestic investment rate over the years 2000 to 2013 and the population growth rate n equal to the geometric average of the population growth rate over the years 2000 to 2013. Furthermore, we use a value of 0.3 for the elasticity of final output with respect to physical capital (α), which is in line with the literature (cf. Jones, 1995; Acemoglu, 2009; Grossmann et al., 2013). Finally, we set the rate of depreciation equal to $\delta = 0.04$ as in Grossmann et al. (2013) and we use a value of 0.7 for s_m such that the effects of automation become visible in the graphs.

In Figure 1 we plot, on the left side, the traditional capital stock per capita, the automation capital stock per capita, and per capita GDP against time from $t = 0$ to $t = 100$. On the right side we plot the corresponding growth rates. The solid lines refer to the baseline parameter specification. We clearly observe exponential growth in the traditional capital stock, the stock of automation capital, and per capita GDP with no tendency to level off in the long run. Furthermore, we see that the growth rates of these variables converge toward their long-run solutions that are clearly positive. We also show the impact of an increase in the population growth rate of $n = 0.009$ to a rate of $n = 0.02$, which is displayed by the dashed lines. We observe that the country with the higher population growth rate attains a lower growth rate of per capita GDP, even in the long run.

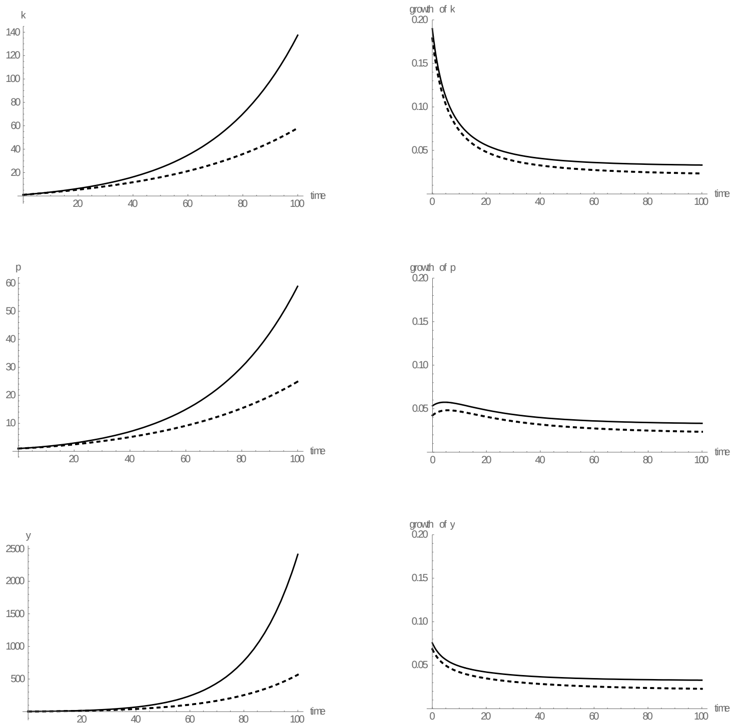


Figure 1: Levels of k, p, L, and y (left side) and growth rates of k, p, L, and y (right side). The solid lines represent the original solution, while the dashed lines represent the solution with the higher savings rate.

Finally, we assess the implied impact of the introduction of automation on the labor share. Karabarbounis and Neiman (2014) document a reduction of the global labor share by around 5 percentage points from the early 1970s to the 2010s. Given that the fraction of industrial robots to the total capital stock in advanced economies has been estimated as 2.25 percent in 2007 according to Graetz and Michaels (2015), and assuming that it was close to zero in the beginning of the 1970s, our framework implies a decline of the labor share by around 5.5 percentage points, which is roughly in line with the data.

4 Conclusions

We introduced automation into the original model of Solow (1956). While the stock of automation capital is accumulated in a similar vein as traditional capital, its properties in the production process resemble those of labor. We show that, in such a setting, there is perpetual growth of per capita output, even in the absence of technological progress. Furthermore, the long-run economic growth rate decreases with population growth, which is consistent with the available empirical evidence for developed countries in the 20th Century. Finally, we show that there is a unique share of savings diverted to the accumulation of automation capital that maximizes the long-run growth rate.

Our framework has the potential to explain the decrease in the labor income share that has been observed in developed countries over the past decades. The reason is that automation competes closely with the production factor labor, while, at the same time, the income that automation generates is channeled toward the capital owners. Quantitatively, our framework implies a decline of the labor share by around 5.5 percentage points, which is roughly in line with the decline reported by Karabarbounis and Neiman (2014).

The main policy conclusion from our analysis derives from the fact that automation has the potential to raise overall living standards substantially, while, at the same time, workers could be adversely affected. As a consequence, inequality would increase. To reduce the anticipated opposition to automation from labor unions and to mitigate the increase in inequality, it might be desirable to set up a compensation scheme that is used to support the losers of automation technologies. That said, especially in economies that are aging rapidly, automation is a potential solution to overcome at least those problems that are caused by the aging-induced scarcity of labor.

Acknowledgments

I would like to thank Ana Abeliansky, Matthias Beulmann, Alexia Prskawetz, and Johannes Schwarzer for inspiring discussions and helpful advices, and, particularly, Franz X. Hof for numerous helpful comments and suggestions and for invaluable hints with respect to the mathematical properties of the underlying steady states of the model.

Appendix

A Derivations

A.1 Derivation of Equation (5)

Using Equation (3), together with the production function (1), we get

$$\frac{\dot{P}(t)}{P(t)} = (1-s_m)s[L(t)+P(t)]^{1-\alpha}K(t)^{\alpha}P(t)^{-1} - \delta.$$

Multiplying the first term on the right hand side by $\{[L(t)+P(t)]/[L(t)+P(t)]\}^{\alpha}$ yields

$$\frac{\dot{P}(t)}{P(t)} = (1-s_m)s\left[\frac{1+P(t)/L(t)}{P(t)/L(t)}\right]\left[\frac{K(t)}{L(t)+P(t)}\right]^{\alpha} - \delta.$$

A.2 Derivation of the long-run accumulation rate of machines and automation

Reformulating the machine accumulation equation in per-capita terms yields

$$\frac{\dot{K}(t)}{L(t)} = s_m s[1+p(t)]^{1-\alpha}k(t)^{\alpha} - \delta\frac{K(t)}{L(t)}.$$

Reformulating the automation accumulation equation in per-capita terms yields

$$\frac{\dot{P}(t)}{L(t)} = (1-s_m)s[1+p(t)]^{1-\alpha}k(t)^{\alpha} - \delta\frac{P(t)}{L(t)}.$$

The dynamics of $k(t)$ and $p(t)$ are then given by

$$\begin{aligned}
\dot{k}(t) &= \frac{d\frac{K(t)}{L(t)}}{dt} = \frac{\dot{K}(t)}{L(t)} - \frac{K(t)}{L(t)^2}\dot{L}(t) = \frac{\dot{K}(t)}{L(t)} - k(t)\frac{\dot{L}(t)}{L(t)} = \frac{\dot{K}(t)}{L(t)} - nk(t),\\
\dot{p}(t) &= \frac{d\frac{P(t)}{L(t)}}{dt} = \frac{\dot{P}(t)}{L(t)} - \frac{P(t)}{L(t)^2}\dot{L}(t) = \frac{\dot{P}(t)}{L(t)} - p(t)\frac{\dot{L}(t)}{L(t)} = \frac{\dot{P}(t)}{L(t)} - np(t).
\end{aligned}$$

Taken together, these results imply the following system of equations for the evolution of machines per worker and automation capital per worker

$$\begin{aligned}
\dot{k}(t) &= s_m s[1+p(t)]^{1-\alpha}k(t)^{\alpha} - \delta\frac{K(t)}{L(t)} - nk(t),\\
\dot{p}(t) &= (1-s_m)s[1+p(t)]^{1-\alpha}k(t)^{\alpha} - \delta\frac{P(t)}{L(t)} - np(t),
\end{aligned}$$

In terms of growth rates we have

$$
\begin{aligned}
\frac{\dot{k}(t)}{k(t)} &= s_m s \left[\frac{1+p(t)}{k(t)}\right]^{1-\alpha} - \delta - n, \\
\frac{\dot{p}(t)}{p(t)} &= (1-s_m) s \left[\frac{1+p(t)}{p(t)}\right]^{1-\alpha} \left[\frac{k(t)}{p(t)}\right]^{\alpha} - \delta - n.
\end{aligned}
$$

Now we denote the growth rate of a variable x by g_x and the growth rate of its growth rate by g_{g_x}. Then we have

$$
\begin{aligned}
g_k &= s_m s \left[\frac{1+p(t)}{k(t)}\right]^{1-\alpha} - \delta - n, && (10) \\
g_p &= (1-s_m) s \left[\frac{1+p(t)}{p(t)}\right]^{1-\alpha} \left[\frac{k(t)}{p(t)}\right]^{\alpha} - \delta - n, && (11) \\
\Rightarrow \log(g_k + \delta + n) &= \log(s_m) + \log(s) + (1-\alpha)\log[1+p(t)] \\
&\quad -(1-\alpha)\log[k(t)] && (12) \\
\Rightarrow \log(g_p + \delta + n) &= \log(1-s_m) + \log(s) + (1-\alpha)\log[1+p(t)] \\
&\quad -(1-\alpha)\log[p(t)] + \alpha\log[k(t)] - \alpha\log[p(t)], && (13) \\
\Rightarrow g_{(g_k+\delta+n)} &= (1-\alpha)\frac{\dot{p}(t)}{1+p(t)} - (1-\alpha)g_k, && (14) \\
\Rightarrow g_{(g_p+\delta+n)} &= (1-\alpha)\frac{\dot{p}(t)}{1+p(t)} - (1-\alpha)g_p + \alpha g_k - \alpha g_p. && (15)
\end{aligned}
$$

Since, at the long-run equilibrium [for large $p(t)$], we have that

$$\frac{\dot{p}(t)}{1+p(t)} \approx g_p,$$

Equations (14) and (15) imply that the economy converges to a long-run growth rate with $g_p \approx g_k \equiv g$. Note that, for large $p(t)$ and large $k(t)$, we have

$$\left[\frac{1+p(t)}{p(t)}\right]^{1-\alpha} \approx 1, \qquad \frac{p(t)}{k(t)} \approx \frac{1+p(t)}{k(t)} := \xi.$$

Then we can rewrite Equations (10) and (11) such that

$$
\begin{aligned}
g &= s_m s \xi^{1-\alpha} - \delta - n, && (16) \\
g &= (1-s_m) s \left[\frac{1}{\xi}\right]^{\alpha} - \delta - n. && (17)
\end{aligned}
$$

These are two equations in the two unknowns g and ξ. Equalizing their right hand sides yields

$$(1 - s_m)s\left[\frac{1}{\xi}\right]^{\alpha} = s_m s \xi^{1-\alpha}, \quad (18)$$

$$\frac{1 - s_m}{s_m} = \xi. \quad (19)$$

Obviously, and as expected, $\xi = p(t)/k(t)$ declines in s_m because an increase in s_m means that relatively more machines are accumulated and relatively less automation capital. Plugging (19) into (16) yields the long-run growth rate of the economy as

$$g = s_m \cdot s\left(\frac{1 - s_m}{s_m}\right)^{1-\alpha} - \delta - n = s s_m^{\alpha}(1 - s_m)^{1-\alpha} - \delta - n.$$

References

Abeliansky, A., Martinez-Zarzoso, I., and Prettner, K. (2015). The Impact of 3D Printing on Trade and FDI. cege Discussion Paper 262.

Acemoglu, D. (2009). *Introduction to Modern Economic Growth*. Princeton University Press.

Ahituv, A. (2001). Be fruitful or multiply: On the interplay between fertility and economic development. *Journal of Population Economics*, Vol. 14:51–71.

Brander, J. A. and Dowrick, S. (1994). The role of fertility and population in economic growth. *Journal of Population Economics*, Vol. 7(No. 1):1–25.

Brynjolfsson, E. and McAfee, A. (2016). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. Norton & Company.

Graetz, G. and Michaels, G. (2015). Robots at Work. CEPR Discussion Paper 10477.

Grossmann, V., Steger, T. M., and Trimborn, T. (2013). Dynamically optimal R&D subsidization. *Journal of Economic Dynamics and Control*, Vol. 37:516–534.

Herzer, D., Strulik, H., and Vollmer, S. (2012). The long-run determinants of fertility: one century of demographic change 1900-1999. *Journal of Economic Growth*, Vol. 17(No. 4):357–385.

Jones, C. I. (1995). R&D-based models of economic growth. *Journal of Political Economy*, Vol. 103(No. 4):759–783.

Karabarbounis, L. and Neiman, B. (2014). The Global Decline of the Labor Share. *The Quarterly Journal of Economics*, pages 61–103.

Kelley, A. C. and Schmidt, R. M. (1995). Aggregate population and economic growth correlations: the role of the components of demographic change. *Demography*, Vol. 32(No. 4):543–555.

Lanchester, J. (2015). The Robots Are Coming. *London Review of Books*, Vol. 37(No. 5):3–8.

Li, H. and Zhang, J. (2007). Do high birth rates hamper economic growth? *Review of Economics and Statistics*, Vol. 89:110–117.

Peretto, P. F. and Saeter, J. J. (2013). Factor-eliminating technical change. *Journal of Monetary Economics*, Vol. 60.

Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, Vol. 70(No. 1):65–94.

Steigum, E. (2011). *Frontiers of Economics and Globalization: Economic Growth and Development*, chapter 21: Robotics and Growth, pages 543–557. Emerald Group.

The Economist (2014). Immigrants from the future. A special report on robots. *The Economist*, March 27th 2014.

World Bank (2015). World Development Indicators & Global Development Finance Database. `http://databank.worldbank.org/ddp/home.do?Step=12\&id=4\&CNO=2`.

Hohenheim Discussion Papers in Business, Economics and Social Sciences

The Faculty of Business, Economics and Social Sciences continues since 2015 the established “FZID Discussion Paper Series” of the “Centre for Research on Innovation and Services (FZID)” under the name “Hohenheim Discussion Papers in Business, Economics and Social Sciences”.

Institutes

510 Institute of Financial Management
520 Institute of Economics
530 Institute of Health Care & Public Management
540 Institute of Communication Science
550 Institute of Law and Social Sciences
560 Institute of Economic and Business Education
570 Institute of Marketing & Management
580 Institute of Interorganisational Management & Performance

Download Hohenheim Discussion Papers in Business, Economics and Social Sciences
from our homepage: https://wiso.uni-hohenheim.de/papers

Nr.	Autor	Titel	Inst.
01-2015	Thomas Beissinger, Philipp Baudy	THE IMPACT OF TEMPORARY AGENCY WORK ON TRADE UNION WAGE SETTING: A Theoretical Analysis	520
02-2015	Fabian Wahl	PARTICIPATIVE POLITICAL INSTITUTIONS AND CITY DEVELOPMENT 800-1800	520
03-2015	Tommaso Proietti, Martyna Marczak, Gianluigi Mazzi	EuroMInd-D: A DENSITY ESTIMATE OF MONTHLY GROSS DOMESTIC PRODUCT FOR THE EURO AREA	520
04-2015	Thomas Beissinger, Nathalie Chusseau, Joël Hellier	OFFSHORING AND LABOUR MARKET REFORMS: MODELLING THE GERMAN EXPERIENCE	520
05-2015	Matthias Mueller, Kristina Bogner, Tobias Buchmann, Muhamed Kudic	SIMULATING KNOWLEDGE DIFFUSION IN FOUR STRUCTURALLY DISTINCT NETWORKS – AN AGENT-BASED SIMULATION MODEL	520
06-2015	Martyna Marczak, Thomas Beissinger	BIDIRECTIONAL RELATIONSHIP BETWEEN INVESTOR SENTIMENT AND EXCESS RETURNS: NEW EVIDENCE FROM THE WAVELET PERSPECTIVE	520
07-2015	Peng Nie, Galit Nimrod, Alfonso Sousa-Poza	INTERNET USE AND SUBJECTIVE WELL-BEING IN CHINA	530
08-2015	Fabian Wahl	THE LONG SHADOW OF HISTORY ROMAN LEGACY AND ECONOMIC DEVELOPMENT – EVIDENCE FROM THE GERMAN LIMES	520
09-2015	Peng Nie, Alfonso Sousa-Poza	COMMUTE TIME AND SUBJECTIVE WELL-BEING IN URBAN CHINA	530

Nr.	Autor	Titel	Inst.
10-2015	Kristina Bogner	THE EFFECT OF PROJECT FUNDING ON INNOVATIVE PERFORMANCE AN AGENT-BASED SIMULATION MODEL	520
11-2015	Bogang Jun, Tai-Yoo Kim	A NEO-SCHUMPETERIAN PERSPECTIVE ON THE ANALYTICAL MACROECONOMIC FRAMEWORK: THE EXPANDED REPRODUCTION SYSTEM	520
12-2015	Volker Grossmann Aderonke Osikominu Marius Osterfeld	ARE SOCIOCULTURAL FACTORS IMPORTANT FOR STUDYING A SCIENCE UNIVERSITY MAJOR?	520
13-2015	Martyna Marczak Tommaso Proietti Stefano Grassi	A DATA–CLEANING AUGMENTED KALMAN FILTER FOR ROBUST ESTIMATION OF STATE SPACE MODELS	520
14-2015	Carolina Castagnetti Luisa Rosti Marina Töpfer	THE REVERSAL OF THE GENDER PAY GAP AMONG PUBLIC-CONTEST SELECTED YOUNG EMPLOYEES	520
15-2015	Alexander Opitz	DEMOCRATIC PROSPECTS IN IMPERIAL RUSSIA: THE REVOLUTION OF 1905 AND THE POLITICAL STOCK MARKET	520
01-2016	Michael Ahlheim, Jan Neidhardt	NON-TRADING BEHAVIOUR IN CHOICE EXPERIMENTS	520
02-2016	Bogang Jun, Alexander Gerybadze, Tai-Yoo Kim	THE LEGACY OF FRIEDRICH LIST: THE EXPANSIVE REPRODUCTION SYSTEM AND THE KOREAN HISTORY OF INDUSTRIALIZATION	520
03-2016	Peng Nie, Alfonso Sousa-Poza	FOOD INSECURITY AMONG OLDER EUROPEANS: EVIDENCE FROM THE SURVEY OF HEALTH, AGEING, AND RETIREMENT IN EUROPE	530
04-2016	Peter Spahn	POPULATION GROWTH, SAVING, INTEREST RATES AND STAGNATION. DISCUSSING THE EGGERTSSON-MEHROTRA-MODEL	520
05-2016	Vincent Dekker, Kristina Strohmaier, Nicole Bosch	A DATA-DRIVEN PROCEDURE TO DETERMINE THE BUNCHING WINDOW – AN APPLICATION TO THE NETHERLANDS	520
06-2016	Philipp Baudy, Dario Cords	DEREGULATION OF TEMPORARY AGENCY EMPLOYMENT IN A UNIONIZED ECONOMY: DOES THIS REALLY LEAD TO A SUBSTITUTION OF REGULAR EMPLOYMENT?	520
07-2016	Robin Jessen, Davud Rostam-Afschar, Sebastian Schmitz	HOW IMPORTANT IS PRECAUTIONARY LABOR SUPPLY?	520
08-2016	Peng Nie, Alfonso Sousa-Poza, Jianhong Xue	FUEL FOR LIFE: DOMESTIC COOKING FUELS AND WOMEN’S HEALTH IN RURAL CHINA	530

Nr.	Autor	Titel	Inst.
09-2016	Bogang Jun, Seung Kyu-Yi, Tobias Buchmann, Matthias Müller	THE CO-EVOLUTION OF INNOVATION NETWORKS: COLLABORATION BETWEEN WEST AND EAST GERMANY FROM 1972 TO 2014	520
10-2016	Vladan Ivanovic, Vadim Kufenko, Boris Begovic Nenad Stanisic, Vincent Geloso	CONTINUITY UNDER A DIFFERENT NAME. THE OUTCOME OF PRIVATISATION IN SERBIA	520
11-2016	David E. Bloom Michael Kuhn Klaus Prettner	THE CONTRIBUTION OF FEMALE HEALTH TO ECONOMIC DEVELOPMENT	520
12-2016	Franz X. Hof Klaus Prettner	THE QUEST FOR STATUS AND R&D-BASED GROWTH	520
13-2016	Jung-In Yeon Andreas Pyka Tai-Yoo Kim	STRUCTURAL SHIFT AND INCREASING VARIETY IN KOREA, 1960–2010: EMPIRICAL EVIDENCE OF THE ECONOMIC DEVELOPMENT MODEL BY THE CREATION OF NEW SECTORS	520
14-2016	Benjamin Fuchs	THE EFFECT OF TEENAGE EMPLOYMENT ON CHARACTER SKILLS, EXPECTATIONS AND OCCUPATIONAL CHOICE STRATEGIES	520
15-2016	Seung-Kyu Yi Bogang Jun	HAS THE GERMAN REUNIFICATION STRENGTHENED GERMANY’S NATIONAL INNOVATION SYSTEM? TRIPLE HELIX DYNAMICS OF GERMANY’S INNOVATION SYSTEM	520
16-2016	Gregor Pfeifer Fabian Wahl Martyna Marczak	ILLUMINATING THE WORLD CUP EFFECT: NIGHT LIGHTS EVIDENCE FROM SOUTH AFRICA	520
17-2016	Malte Klein Andreas Sauer	CELEBRATING 30 YEARS OF INNOVATION SYSTEM RESEARCH: WHAT YOU NEED TO KNOW ABOUT INNOVATION SYSTEMS	570
18-2016	Klaus Prettner	THE IMPLICATIONS OF AUTOMATION FOR ECONOMIC GROWTH AND THE LABOR SHARE	520

FZID Discussion Papers

(published 2009-2014)

Competence Centers

IK	Innovation and Knowledge
ICT	Information Systems and Communication Systems
CRFM	Corporate Finance and Risk Management
HCM	Health Care Management
CM	Communication Management
MM	Marketing Management
ECO	Economics

Download FZID Discussion Papers from our homepage: https://wiso.uni-hohenheim.de/archiv_fzid_papers

Nr.	Autor	Titel	CC
01-2009	Julian P. Christ	NEW ECONOMIC GEOGRAPHY RELOADED: Localized Knowledge Spillovers and the Geography of Innovation	IK
02-2009	André P. Slowak	MARKET FIELD STRUCTURE & DYNAMICS IN INDUSTRIAL AUTOMATION	IK
03-2009	Pier Paolo Saviotti, Andreas Pyka	GENERALIZED BARRIERS TO ENTRY AND ECONOMIC DEVELOPMENT	IK
04-2009	Uwe Focht, Andreas Richter and Jörg Schiller	INTERMEDIATION AND MATCHING IN INSURANCE MARKETS	HCM
05-2009	Julian P. Christ, André P. Slowak	WHY BLU-RAY VS. HD-DVD IS NOT VHS VS. BETAMAX: THE CO-EVOLUTION OF STANDARD-SETTING CONSORTIA	IK
06-2009	Gabriel Felbermayr, Mario Larch and Wolfgang Lechthaler	UNEMPLOYMENT IN AN INTERDEPENDENT WORLD	ECO
07-2009	Steffen Otterbach	MISMATCHES BETWEEN ACTUAL AND PREFERRED WORK TIME: Empirical Evidence of Hours Constraints in 21 Countries	HCM
08-2009	Sven Wydra	PRODUCTION AND EMPLOYMENT IMPACTS OF NEW TECHNOLOGIES – ANALYSIS FOR BIOTECHNOLOGY	IK
09-2009	Ralf Richter, Jochen Streb	CATCHING-UP AND FALLING BEHIND KNOWLEDGE SPILLOVER FROM AMERICAN TO GERMAN MACHINE TOOL MAKERS	IK

Nr.	Autor	Titel	CC
10-2010	Rahel Aichele, Gabriel Felbermayr	KYOTO AND THE CARBON CONTENT OF TRADE	ECO
11-2010	David E. Bloom, Alfonso Sousa-Poza	ECONOMIC CONSEQUENCES OF LOW FERTILITY IN EUROPE	HCM
12-2010	Michael Ahlheim, Oliver Frör	DRINKING AND PROTECTING – A MARKET APPROACH TO THE PRESERVATION OF CORK OAK LANDSCAPES	ECO
13-2010	Michael Ahlheim, Oliver Frör, Antonia Heinke, Nguyen Minh Duc, and Pham Van Dinh	LABOUR AS A UTILITY MEASURE IN CONTINGENT VALUATION STUDIES – HOW GOOD IS IT REALLY?	ECO
14-2010	Julian P. Christ	THE GEOGRAPHY AND CO-LOCATION OF EUROPEAN TECHNOLOGY-SPECIFIC CO-INVENTORSHIP NETWORKS	IK
15-2010	Harald Degner	WINDOWS OF TECHNOLOGICAL OPPORTUNITY DO TECHNOLOGICAL BOOMS INFLUENCE THE RELATIONSHIP BETWEEN FIRM SIZE AND INNOVATIVENESS?	IK
16-2010	Tobias A. Jopp	THE WELFARE STATE EVOLVES: GERMAN KNAPPSCHAFTEN, 1854-1923	HCM
17-2010	Stefan Kirn (Ed.)	PROCESS OF CHANGE IN ORGANISATIONS THROUGH eHEALTH	ICT
18-2010	Jörg Schiller	ÖKONOMISCHE ASPEKTE DER ENTLOHNUNG UND REGULIERUNG UNABHÄNGIGER VERSICHERUNGSVERMITTLER	HCM
19-2010	Frauke Lammers, Jörg Schiller	CONTRACT DESIGN AND INSURANCE FRAUD: AN EXPERIMENTAL INVESTIGATION	HCM
20-2010	Martyna Marczak, Thomas Beissinger	REAL WAGES AND THE BUSINESS CYCLE IN GERMANY	ECO
21-2010	Harald Degner, Jochen Streb	FOREIGN PATENTING IN GERMANY, 1877-1932	IK
22-2010	Heiko Stüber, Thomas Beissinger	DOES DOWNWARD NOMINAL WAGE RIGIDITY DAMPEN WAGE INCREASES?	ECO
23-2010	Mark Spoerer, Jochen Streb	GUNS AND BUTTER – BUT NO MARGARINE: THE IMPACT OF NAZI ECONOMIC POLICIES ON GERMAN FOOD CONSUMPTION, 1933-38	ECO

Nr.	Autor	Titel	CC
24-2011	Dhammika Dharmapala, Nadine Riedel	EARNINGS SHOCKS AND TAX-MOTIVATED INCOME-SHIFTING: EVIDENCE FROM EUROPEAN MULTINATIONALS	ECO
25-2011	Michael Schuele, Stefan Kirn	QUALITATIVES, RÄUMLICHES SCHLIEßEN ZUR KOLLISIONSERKENNUNG UND KOLLISIONSVERMEIDUNG AUTONOMER BDI-AGENTEN	ICT
26-2011	Marcus Müller, Guillaume Stern, Ansger Jacob and Stefan Kirn	VERHALTENSMODELLE FÜR SOFTWAREAGENTEN IM PUBLIC GOODS GAME	ICT
27-2011	Monnet Benoit, Patrick Gbakoua and Alfonso Sousa-Poza	ENGEL CURVES, SPATIAL VARIATION IN PRICES AND DEMAND FOR COMMODITIES IN CÔTE D'IVOIRE	ECO
28-2011	Nadine Riedel, Hannah Schildberg-Hörisch	ASYMMETRIC OBLIGATIONS	ECO
29-2011	Nicole Waidlein	CAUSES OF PERSISTENT PRODUCTIVITY DIFFERENCES IN THE WEST GERMAN STATES IN THE PERIOD FROM 1950 TO 1990	IK
30-2011	Dominik Hartmann, Atilio Arata	MEASURING SOCIAL CAPITAL AND INNOVATION IN POOR AGRICULTURAL COMMUNITIES. THE CASE OF CHÁPARRA - PERU	IK
31-2011	Peter Spahn	DIE WÄHRUNGSKRISENUNION DIE EURO-VERSCHULDUNG DER NATIONALSTAATEN ALS SCHWACHSTELLE DER EWU	ECO
32-2011	Fabian Wahl	DIE ENTWICKLUNG DES LEBENSSTANDARDS IM DRITTEN REICH – EINE GLÜCKSÖKONOMISCHE PERSPEKTIVE	ECO
33-2011	Giorgio Triulzi, Ramon Scholz and Andreas Pyka	R&D AND KNOWLEDGE DYNAMICS IN UNIVERSITY-INDUSTRY RELATIONSHIPS IN BIOTECH AND PHARMACEUTICALS: AN AGENT-BASED MODEL	IK
34-2011	Claus D. Müller-Hengstenberg, Stefan Kirn	ANWENDUNG DES ÖFFENTLICHEN VERGABERECHTS AUF MODERNE IT SOFTWAREENTWICKLUNGSVERFAHREN	ICT
35-2011	Andreas Pyka	AVOIDING EVOLUTIONARY INEFFICIENCIES IN INNOVATION NETWORKS	IK
36-2011	David Bell, Steffen Otterbach and Alfonso Sousa-Poza	WORK HOURS CONSTRAINTS AND HEALTH	HCM
37-2011	Lukas Scheffknecht, Felix Geiger	A BEHAVIORAL MACROECONOMIC MODEL WITH ENDOGENOUS BOOM-BUST CYCLES AND LEVERAGE DYNAMICS	ECO
38-2011	Yin Krogmann, Ulrich Schwalbe	INTER-FIRM R&D NETWORKS IN THE GLOBAL PHARMACEUTICAL BIOTECHNOLOGY INDUSTRY DURING 1985–1998: A CONCEPTUAL AND EMPIRICAL ANALYSIS	IK

Nr.	Autor	Titel	CC
39-2011	Michael Ahlheim, Tobias Börger and Oliver Frör	RESPONDENT INCENTIVES IN CONTINGENT VALUATION: THE ROLE OF RECIPROCITY	ECO
40-2011	Tobias Börger	A DIRECT TEST OF SOCIALLY DESIRABLE RESPONDING IN CONTINGENT VALUATION INTERVIEWS	ECO
41-2011	Ralf Rukwid, Julian P. Christ	QUANTITATIVE CLUSTERIDENTIFIKATION AUF EBENE DER DEUTSCHEN STADT- UND LANDKREISE (1999-2008)	IK

Nr.	Autor	Titel	CC
42-2012	Benjamin Schön, Andreas Pyka	A TAXONOMY OF INNOVATION NETWORKS	IK
43-2012	Dirk Foremny, Nadine Riedel	BUSINESS TAXES AND THE ELECTORAL CYCLE	ECO
44-2012	Gisela Di Meglio, Andreas Pyka and Luis Rubalcaba	VARIETIES OF SERVICE ECONOMIES IN EUROPE	IK
45-2012	Ralf Rukwid, Julian P. Christ	INNOVATIONSPOTENTIALE IN BADEN-WÜRTTEMBERG: PRODUKTIONSCLUSTER IM BEREICH „METALL, ELEKTRO, IKT“ UND REGIONALE VERFÜGBARKEIT AKADEMISCHER FACHKRÄFTE IN DEN MINT-FÄCHERN	IK
46-2012	Julian P. Christ, Ralf Rukwid	INNOVATIONSPOTENTIALE IN BADEN-WÜRTTEMBERG: BRANCHENSPEZIFISCHE FORSCHUNGS- UND ENTWICKLUNGSAKTIVITÄT, REGIONALES PATENTAUFKOMMEN UND BESCHÄFTIGUNGSSTRUKTUR	IK
47-2012	Oliver Sauter	ASSESSING UNCERTAINTY IN EUROPE AND THE US - IS THERE A COMMON FACTOR?	ECO
48-2012	Dominik Hartmann	SEN MEETS SCHUMPETER. INTRODUCING STRUCTURAL AND DYNAMIC ELEMENTS INTO THE HUMAN CAPABILITY APPROACH	IK
49-2012	Harold Paredes-Frigolett, Andreas Pyka	DISTAL EMBEDDING AS A TECHNOLOGY INNOVATION NETWORK FORMATION STRATEGY	IK
50-2012	Martyna Marczak, Víctor Gómez	CYCLICALITY OF REAL WAGES IN THE USA AND GERMANY: NEW INSIGHTS FROM WAVELET ANALYSIS	ECO
51-2012	André P. Slowak	DIE DURCHSETZUNG VON SCHNITTSTELLEN IN DER STANDARDSETZUNG: FALLBEISPIEL LADESYSTEM ELEKTROMOBILITÄT	IK
52-2012	Fabian Wahl	WHY IT MATTERS WHAT PEOPLE THINK - BELIEFS, LEGAL ORIGINS AND THE DEEP ROOTS OF TRUST	ECO
53-2012	Dominik Hartmann, Micha Kaiser	STATISTISCHER ÜBERBLICK DER TÜRKISCHEN MIGRATION IN BADEN-WÜRTTEMBERG UND DEUTSCHLAND	IK
54-2012	Dominik Hartmann, Andreas Pyka, Seda Aydin, Lena Klauß, Fabian Stahl, Ali Santircioglu, Silvia Oberegelsbacher, Sheida Rashidi, Gaye Onan and Suna Erginkoç	IDENTIFIZIERUNG UND ANALYSE DEUTSCH-TÜRKISCHER INNOVATIONSNETZWERKE. ERSTE ERGEBNISSE DES TGIN-PROJEKTES	IK
55-2012	Michael Ahlheim, Tobias Börger and Oliver Frör	THE ECOLOGICAL PRICE OF GETTING RICH IN A GREEN DESERT: A CONTINGENT VALUATION STUDY IN RURAL SOUTHWEST CHINA	ECO

Nr.	Autor	Titel	CC
56-2012	Matthias Strifler Thomas Beissinger	FAIRNESS CONSIDERATIONS IN LABOR UNION WAGE SETTING – A THEORETICAL ANALYSIS	ECO
57-2012	Peter Spahn	INTEGRATION DURCH WÄHRUNGSUNION? DER FALL DER EURO-ZONE	ECO
58-2012	Sibylle H. Lehmann	TAKING FIRMS TO THE STOCK MARKET: IPOS AND THE IMPORTANCE OF LARGE BANKS IN IMPERIAL GERMANY 1896-1913	ECO
59-2012	Sibylle H. Lehmann, Philipp Hauber and Alexander Opitz	POLITICAL RIGHTS, TAXATION, AND FIRM VALUATION – EVIDENCE FROM SAXONY AROUND 1900	ECO
60-2012	Martyna Marczak, Víctor Gómez	SPECTRAN, A SET OF MATLAB PROGRAMS FOR SPECTRAL ANALYSIS	ECO
61-2012	Theresa Lohse, Nadine Riedel	THE IMPACT OF TRANSFER PRICING REGULATIONS ON PROFIT SHIFTING WITHIN EUROPEAN MULTINATIONALS	ECO

Nr.	Autor	Titel	CC
62-2013	Heiko Stüber	REAL WAGE CYCLICALITY OF NEWLY HIRED WORKERS	ECO
63-2013	David E. Bloom, Alfonso Sousa-Poza	AGEING AND PRODUCTIVITY	HCM
64-2013	Martyna Marczak, Víctor Gómez	MONTHLY US BUSINESS CYCLE INDICATORS: A NEW MULTIVARIATE APPROACH BASED ON A BAND-PASS FILTER	ECO
65-2013	Dominik Hartmann, Andreas Pyka	INNOVATION, ECONOMIC DIVERSIFICATION AND HUMAN DEVELOPMENT	IK
66-2013	Christof Ernst, Katharina Richter and Nadine Riedel	CORPORATE TAXATION AND THE QUALITY OF RESEARCH AND DEVELOPMENT	ECO
67-2013	Michael Ahlheim, Oliver Frör, Jiang Tong, Luo Jing and Sonna Pelz	NONUSE VALUES OF CLIMATE POLICY - AN EMPIRICAL STUDY IN XINJIANG AND BEIJING	ECO
68-2013	Michael Ahlheim, Friedrich Schneider	CONSIDERING HOUSEHOLD SIZE IN CONTINGENT VALUATION STUDIES	ECO
69-2013	Fabio Bertoni, Tereza Tykvová	WHICH FORM OF VENTURE CAPITAL IS MOST SUPPORTIVE OF INNOVATION? EVIDENCE FROM EUROPEAN BIOTECHNOLOGY COMPANIES	CFRM
70-2013	Tobias Buchmann, Andreas Pyka	THE EVOLUTION OF INNOVATION NETWORKS: THE CASE OF A GERMAN AUTOMOTIVE NETWORK	IK
71-2013	B. Vermeulen, A. Pyka, J. A. La Poutré and A. G. de Kok	CAPABILITY-BASED GOVERNANCE PATTERNS OVER THE PRODUCT LIFE-CYCLE	IK
72-2013	Beatriz Fabiola López Ulloa, Valerie Møller and Alfonso Sousa-Poza	HOW DOES SUBJECTIVE WELL-BEING EVOLVE WITH AGE? A LITERATURE REVIEW	HCM
73-2013	Wencke Gwozdz, Alfonso Sousa-Poza, Lucia A. Reisch, Wolfgang Ahrens, Stefaan De Henauw, Gabriele Eiben, Juan M. Fernández-Alvira, Charalampos Hadjigeorgiou, Eva Kovács, Fabio Lauria, Toomas Veidebaum, Garrath Williams, Karin Bammann	MATERNAL EMPLOYMENT AND CHILDHOOD OBESITY – A EUROPEAN PERSPECTIVE	HCM

Nr.	Autor	Titel	CC
74-2013	Andreas Haas, Annette Hofmann	RISIKEN AUS CLOUD-COMPUTING-SERVICES: FRAGEN DES RISIKOMANAGEMENTS UND ASPEKTE DER VERSICHERBARKEIT	HCM
75-2013	Yin Krogmann, Nadine Riedel and Ulrich Schwalbe	INTER-FIRM R&D NETWORKS IN PHARMACEUTICAL BIOTECHNOLOGY: WHAT DETERMINES FIRM'S CENTRALITY-BASED PARTNERING CAPABILITY?	ECO, IK
76-2013	Peter Spahn	MACROECONOMIC STABILISATION AND BANK LENDING: A SIMPLE WORKHORSE MODEL	ECO
77-2013	Sheida Rashidi, Andreas Pyka	MIGRATION AND INNOVATION – A SURVEY	IK
78-2013	Benjamin Schön, Andreas Pyka	THE SUCCESS FACTORS OF TECHNOLOGY-SOURCING THROUGH MERGERS & ACQUISITIONS – AN INTUITIVE META-ANALYSIS	IK
79-2013	Irene Prostolupow, Andreas Pyka and Barbara Heller-Schuh	TURKISH-GERMAN INNOVATION NETWORKS IN THE EUROPEAN RESEARCH LANDSCAPE	IK
80-2013	Eva Schlenker, Kai D. Schmid	CAPITAL INCOME SHARES AND INCOME INEQUALITY IN THE EUROPEAN UNION	ECO
81-2013	Michael Ahlheim, Tobias Börger and Oliver Frör	THE INFLUENCE OF ETHNICITY AND CULTURE ON THE VALUATION OF ENVIRONMENTAL IMPROVEMENTS – RESULTS FROM A CVM STUDY IN SOUTHWEST CHINA –	ECO
82-2013	Fabian Wahl	DOES MEDIEVAL TRADE STILL MATTER? HISTORICAL TRADE CENTERS, AGGLOMERATION AND CONTEMPORARY ECONOMIC DEVELOPMENT	ECO
83-2013	Peter Spahn	SUBPRIME AND EURO CRISIS: SHOULD WE BLAME THE ECONOMISTS?	ECO
84-2013	Daniel Guffarth, Michael J. Barber	THE EUROPEAN AEROSPACE R&D COLLABORATION NETWORK	IK
85-2013	Athanasios Saitis	KARTELLBEKÄMPFUNG UND INTERNE KARTELLSTRUKTUREN: EIN NETZWERKTHEORETISCHER ANSATZ	IK

Nr.	Autor	Titel	CC
86-2014	Stefan Kirn, Claus D. Müller-Hengstenberg	INTELLIGENTE (SOFTWARE-)AGENTEN: EINE NEUE HERAUSFORDERUNG FÜR DIE GESELLSCHAFT UND UNSER RECHTSSYSTEM?	ICT
87-2014	Peng Nie, Alfonso Sousa-Poza	MATERNAL EMPLOYMENT AND CHILDHOOD OBESITY IN CHINA: EVIDENCE FROM THE CHINA HEALTH AND NUTRITION SURVEY	HCM
88-2014	Steffen Otterbach, Alfonso Sousa-Poza	JOB INSECURITY, EMPLOYABILITY, AND HEALTH: AN ANALYSIS FOR GERMANY ACROSS GENERATIONS	HCM
89-2014	Carsten Burhop, Sibylle H. Lehmann-Hasemeyer	THE GEOGRAPHY OF STOCK EXCHANGES IN IMPERIAL GERMANY	ECO
90-2014	Martyna Marczak, Tommaso Proietti	OUTLIER DETECTION IN STRUCTURAL TIME SERIES MODELS: THE INDICATOR SATURATION APPROACH	ECO
91-2014	Sophie Urmetzer, Andreas Pyka	VARIETIES OF KNOWLEDGE-BASED BIOECONOMIES	IK
92-2014	Bogang Jun, Joongho Lee	THE TRADEOFF BETWEEN FERTILITY AND EDUCATION: EVIDENCE FROM THE KOREAN DEVELOPMENT PATH	IK
93-2014	Bogang Jun, Tai-Yoo Kim	NON-FINANCIAL HURDLES FOR HUMAN CAPITAL ACCUMULATION: LANDOWNERSHIP IN KOREA UNDER JAPANESE RULE	IK
94-2014	Michael Ahlheim, Oliver Frör, Gerhard Langenberger and Sonna Pelz	CHINESE URBANITES AND THE PRESERVATION OF RARE SPECIES IN REMOTE PARTS OF THE COUNTRY – THE EXAMPLE OF EAGLEWOOD	ECO
95-2014	Harold Paredes-Frigolett, Andreas Pyka, Javier Pereira and Luiz Flávio Autran Monteiro Gomes	RANKING THE PERFORMANCE OF NATIONAL INNOVATION SYSTEMS IN THE IBERIAN PENINSULA AND LATIN AMERICA FROM A NEO-SCHUMPETERIAN ECONOMICS PERSPECTIVE	IK
96-2014	Daniel Guffarth, Michael J. Barber	NETWORK EVOLUTION, SUCCESS, AND REGIONAL DEVELOPMENT IN THE EUROPEAN AEROSPACE INDUSTRY	IK

IMPRINT

University of Hohenheim
Dean’s Office of the Faculty of Business, Economics and Social Sciences
Palace Hohenheim 1 B
70593 Stuttgart | Germany
Fon +49 (0)711 459 22488
Fax +49 (0)711 459 22785
E-mail wiso@uni-hohenheim.de
Web www.wiso.uni-hohenheim.de