

Grafeneder-Weissteiner, Theresa; Prettnner, Klaus; Südekum, Jens

Working Paper

Three pillars of urbanization: Migration, aging, and growth

Hohenheim Discussion Papers in Business, Economics and Social Sciences, No. 04-2018

Provided in Cooperation with:

Faculty of Business, Economics and Social Sciences, University of Hohenheim

Suggested Citation: Grafeneder-Weissteiner, Theresa; Prettnner, Klaus; Südekum, Jens (2018) : Three pillars of urbanization: Migration, aging, and growth, Hohenheim Discussion Papers in Business, Economics and Social Sciences, No. 04-2018, Universität Hohenheim, Fakultät Wirtschafts- und Sozialwissenschaften, Stuttgart, <http://nbn-resolving.de/urn:nbn:de:bsz:100-opus-14660>

This Version is available at:

<http://hdl.handle.net/10419/175406>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



UNIVERSITY OF
HOHENHEIM

200
1818
2018
YEARS

Hohenheim Discussion Papers in Business, Economics and Social Sciences

THREE PILLARS OF URBANIZATION: MIGRATION, AGING, AND GROWTH

Theresa Grafeneder-Weissteiner
University of Vienna

Klaus Prettner
University of Hohenheim

Jens Südekum
Heinrich-Heine-University Düsseldorf

Research Area INEPA

04-2018

Discussion Paper 04-2018

Three pillars of urbanization: migration, aging, and growth

Theresa Grafeneder-Weissteiner, Klaus Prettnner, Jens Südekum

Download this Discussion Paper from our homepage:

<https://wiso.uni-hohenheim.de/papers>

ISSN 2364-2084

Die Hohenheim Discussion Papers in Business, Economics and Social Sciences dienen der schnellen Verbreitung von Forschungsarbeiten der Fakultät Wirtschafts- und Sozialwissenschaften. Die Beiträge liegen in alleiniger Verantwortung der Autoren und stellen nicht notwendigerweise die Meinung der Fakultät Wirtschafts- und Sozialwissenschaften dar.

Hohenheim Discussion Papers in Business, Economics and Social Sciences are intended to make results of the Faculty of Business, Economics and Social Sciences research available to the public in order to encourage scientific discussion and suggestions for revisions. The authors are solely responsible for the contents which do not necessarily represent the opinion of the Faculty of Business, Economics and Social Sciences.

Three pillars of urbanization: migration, aging, and growth

Theresa Grafeneder-Weissteiner^a, Klaus Prettnner^b, and Jens Südekum^c

a) University of Vienna
Department of Economics
Oskar-Morgenstern-Platz 1
A-1090 Vienna, Austria

b) University of Hohenheim
Institute of Economics
Schloss Hohenheim 1d, Osthof-West
70593 Stuttgart, Germany
email: klaus.prettnner@uni-hohenheim.de

c) Heinrich-Heine-University Düsseldorf
Düsseldorf Institute for Competition Economics (DICE)
Universitätsstraße 1
40225 Düsseldorf, Germany

Abstract

Economic development in industrialized countries is characterized by rising per capita GDP, increasing life expectancy, and an ever larger share of the population living in cities. We explain this pattern within a regional innovation-driven economic growth model with labor mobility and a demographic structure of overlapping generations. The model shows that there is a natural tendency for core-periphery structures to emerge in modern knowledge-based economies.

JEL classification: J10, O30, O41, R23.

Keywords: Agglomeration, migration, innovation, growth, demography, urbanization, core-periphery structure, regional inequality.

1 Introduction

Over the last decades, the pattern of economic development in industrialized countries has been characterized by steadily rising per capita GDP, a strong increase in life expectancy at birth, and an ever larger share of the population living in cities. This pattern is illustrated for the United States in Figure 1 displaying the evolution of per capita GDP (solid line, left axis), life expectancy at birth (dotted line, right axis), and the urbanization rate (dashed line, right axis) over the past 50 years. We observe that all these variables have steadily been trending upwards.

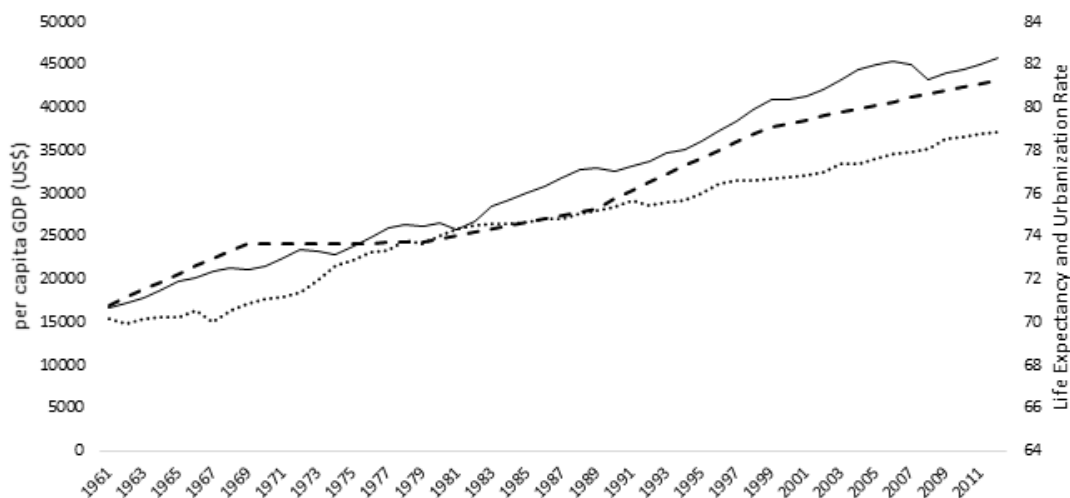


Figure 1: Per capita GDP (solid line, left axis), life expectancy at birth (dotted line, right axis), and urbanization (dashed line, right axis) in the United States from 1960 to 2013.

The evolution of per capita income, life expectancy, and urbanization has largely been analyzed separately with the New Economic Geography literature focusing on the analysis of agglomeration and regional migration patterns, innovation-based growth theory analyzing the determinants of long-run economic development from a country-level perspective, and the demographic life-cycle literature focusing on the effects of demographic changes on savings decisions. However, as Figure 1 suggests and as the Commission on Growth and Development (2008) makes clear, these processes are intertwined.

The aim of our paper is to provide a unified framework for the joint analysis of demographic change, migration, and economic growth to explain the interrelations depicted in Figure 1 as well as the continuously ongoing expansion of large agglomerations in developed countries. We show that increasing life expectancy, migration, and innovation-driven economic growth all constitute strong agglomeration forces that outweigh the dispersion forces of congestion, migration costs, and the anti-agglomerative economic force of the turnover of generations (Grafeneder-Weissteiner and Prettnner, 2013) in modern knowledge-based economies.

As far as the related literature is concerned, there are three largely disconnected strands that we aim to integrate. The New Economic Geography literature analyzes processes that lead to the endogenous agglomeration of productive factors between initially symmetric regions.¹ A central determinant of the relative strength of agglomeration versus dispersion forces is represented by trade costs. For high trade costs, it is very expensive to transport goods to other regions such that firms have an incentive to locate close to the customers and economic activity is dispersed. There will be lots of regional suppliers to minimize trade costs and no large agglomerations. For low trade costs, by contrast, positive agglomeration externalities outweigh the costs of transporting goods between regions and a geographic concentration of economic activity will start to emerge. Declining trade costs thus foster agglomeration over the course of economic development. While elements of economic growth models with learning-by-doing spillovers à la Romer (1986) as additional agglomerative force have been introduced to the New Economic Geography (see, for example, Martin and Ottaviano, 1999; Baldwin and Forslid, 2000), the effects of innovation-driven growth on the spatial concentration of economic activities have not yet been thoroughly analyzed. Furthermore, demographic aspects have been largely neglected within this strand of the literature. An exception is the work of Grafeneder-Weissteiner and Prettner (2013) who integrate an overlapping generations structure into a neoclassical New Economic Geography model of the Baldwin (1999) type. They show that demographic changes are a central determinant of agglomeration processes and that, in line with the empirical evidence, aging acts as an agglomerative force, whereas population growth represents a dispersion force. However, Grafeneder-Weissteiner and Prettner (2013) do not consider the effects of endogenous innovation in this context.

Innovation-driven growth models explain the long-run evolution of technology and economic growth within one country or block of countries (usually the OECD) endogenously by introducing a research sector that sells newly developed blueprints, which are a necessary input for the firms in the intermediate goods sector.² Each firm in the intermediate goods sector produces a differentiated variety (which can be interpreted as a differentiated machine) that is a necessary input in final goods production. The operating profits of the intermediate goods sector are siphoned by the firms in the research sector and used to compensate the scientists who develop new blueprints. The higher the operating profits are in the intermediate goods sector, the stronger is the incentive to invest in innovation and the faster is technological progress and therefore economic growth. Furthermore, the larger the population is, the more scientists are available to design new blueprints, which, in turn, raises the pace of technological progress and economic growth. All these effects

¹See, for example, Krugman (1991), Krugman and Venables (1995), Martin and Ottaviano (1999), Baldwin (1999), Puga (1999), Ottaviano and Thisse (2001, 2002), Ottaviano et al. (2002), Tabuchi and Thisse (2002), and Pflüger and Südekum (2008). See Baldwin et al. (2003) for a detailed survey and applications.

²See, for example, Romer (1990), Grossman and Helpman (1991), Aghion and Howitt (1992), Jones (1995), Kortum (1997), Segerström (1998), Peretto (1998), Young (1998), Howitt (1999), Dalgaard and Kreiner (2001), Strulik (2005), Bucci (2008), and Strulik et al. (2013). For extensive surveys see Gancia and Zilibotti (2005) and Aghion and Howitt (2005).

are present along a balanced growth path of endogenous growth models of the Romer (1990) type as well as during the transition phase toward the long-run balanced growth path in semi-endogenous growth models of the Jones (1995) type. Migration decisions and the inter-regional consequences of innovation-driven growth are typically not analyzed within this literature, although Rivera-Batiz and Romer (1991) show that growth can be enhanced by the integration of two different separated (labor) markets.

Finally, the life-cycle savings literature analyzes the effects of changes in longevity and in the age structure of a population on capital accumulation and medium-run economic growth.³ These frameworks show that increasing life expectancy leads to higher savings, which in turn raises physical capital accumulation and therefore speeds up growth in the medium run. However, these models are typically not concerned with migration and innovation-driven economic growth. An exception is Prettner (2013) who investigates the impact of increasing longevity on the incentives to invest in innovation and finds that the increase in physical capital due to a longer life expectancy reduces the equilibrium market interest rate and therefore the rate at which the proceeds of new innovations are discounted. This in turn raises the compensation for research firms and the wages of the scientists they employ. Consequently, increasing life expectancy speeds up technological progress and long-run economic growth. However, his paper is entirely silent on aspects related to migration and agglomeration.

We are not aware of any framework that combines these approaches to analyze the joint impact of demographic change, migration, and innovation on long-run economic growth and agglomeration. Our aim is to bring these strands of the literature together to explain the interrelations depicted in Figure 1 and thereby the emergence of large agglomerations and their continuously ongoing expansion in knowledge-based economies.

The paper is organized as follows: Section 2 contains the description of the model and its basic assumptions, Section 3 is devoted to the derivation of the equilibrium dynamics, Section 4 describes the symmetric equilibrium and its stability properties, and in Section 5 we draw our conclusions.

2 The model

Consider a country that consists of two initially symmetric regions. To be consistent with the literature, we refer to them as Home (H) and Foreign (F). In both regions there are three production sectors: final goods production, intermediate goods production, and innovation. Both regions have two production factors at their disposal: capital (K) and labor (L). Labor in the form of workers and differentiated machines are used to assemble consumption goods in the final goods sector; capital and blueprints are used in the intermediate goods sector to produce differentiated machines; and labor in the form of

³See, for example, Diamond (1965), Blanchard (1985), Buiter (1988), Heijdra and Ligthart (2006), Bloom et al. (2007), Heijdra and Romp (2008, 2009), Heijdra and Mierau (2010, 2011, 2012), Heijdra et al. (2013), and Mierau and Turnovsky (2014a,b).

scientists is required to produce the blueprints in the innovation sector. Labor is mobile between regions but workers face quadratic migration costs. There is perfect competition in the final goods sector and in the innovation sector, whereas the machine-producing intermediate goods sector is Dixit and Stiglitz (1977) monopolistically competitive. For simplicity, we abstract from trade in consumption goods and in machines.

Individuals face lifetime uncertainty as in Blanchard (1985), which we parameterize by the risk of death, μ . Consequently, the economy consists of different cohorts that can be distinguished by their date of birth, t_0 . We denote the size of each cohort at a certain point in time $\tau > t_0$ by $N(t_0, \tau)$. The law of large numbers implies that the mortality rate μ equals the fraction of individuals who are dying at each instant. Following Blanchard (1985), we assume that the birth rate also equals μ such that the population of one region, $N(\tau) \equiv \int_{-\infty}^{\tau} N(t_0, \tau) dt_0$, is constant.⁴ As in Yaari (1965), a perfect life-insurance company offers actuarial notes, which can be bought or sold by each individual and which are canceled upon the individual's death. Note that there are no bequests in this simplified framework. Introducing imperfect altruism in the sense that there are positive but less than full bequests would not change the qualitative effects outlined here. However, in case that we allowed for perfect altruism and full bequests, we would be back in the infinite lifetime horizon model without a demographic structure. Finally, each individual, irrespective of her age, is endowed with \bar{L}/\bar{N} units of labor, where we denote country-wide variables with an overbar and use an asterisk to denote foreign variables. This means that $\bar{L} = L^* + L$ refers to the country-wide labor supply and $\bar{N} = N + N^*$ refers to the country-wide population size. The share of individuals in the home region is denoted by $s_N \equiv N/\bar{N} = 1/2$. The decision of each individual on her inter-regional distribution of labor supply is based on the real wage differences between H and F and the labor supply decision in turn determines the share of labor employed at home, $s_L \equiv L/\bar{L}$. From now on, we normalize the country-wide labor supply \bar{L} to 1 without loss of generality.

2.1 Consumption side

Within both regions, the representative individual of cohort t_0 maximizes her discounted stream of lifetime utility that is determined by the flow of consumption at each instant. For analytical tractability, we assume a logarithmic instantaneous utility function $u = \log c(t_0, \tau)$, where $c(t_0, \tau)$ denotes the consumption of final goods of the individuals aged $\tau - t_0$. Denoting the time preference rate of individuals by $\rho > 0$ implies that lifetime utility is given by

$$U(t_0, t_0) = \int_{t_0}^{\infty} e^{-(\rho+\mu)(\tau-t_0)} \log c(t_0, \tau) d\tau. \quad (1)$$

Note that the mortality rate augments the time preference rate because individuals who face the risk of death discount the future on top of the pure rate of time discounting. The

⁴Allowing for a growing population according to Buiters (1988) and therefore semi-endogenous growth a la Jones (1995) would imply that similar effects as in our paper would be present in the medium run during the transition toward the long-run balanced growth path.

wealth constraint of each individual has the form of a standard flow budget constraint and reads

$$\dot{k}(t_0, \tau) = [r(\tau) - \delta]k(t_0, \tau) + w(\tau) + d(\tau) - c(t_0, \tau), \quad (2)$$

where $k(t_0, \tau)$ refers to capital holdings, $r(\tau)$ refers to the rate of return on capital, δ denotes the rate of depreciation, $w(\tau)$ refers to wage income, and $d(\tau)$ are country-wide lump-sum dividend payments from holding shares of intermediate goods producers. The labor supply decision of individuals – and hence their tendency to migrate – is analyzed in Subsection 2.2. Optimization yields a standard individual Euler equation that can be aggregated according to our demographic assumptions. This yields the region-wide “aggregate” Euler equation (see Heijdra and van der Ploeg, 2002; Grafeneder-Weissteiner and Prettnner, 2013, for details of the calculations)

$$\frac{\dot{C}(\tau)}{C(\tau)} = [r(\tau) - \rho - \delta] - \mu\Omega. \quad (3)$$

Uppercase letters refer to aggregate quantities and $\Omega \in [0, 1]$ is defined as

$$\Omega \equiv \frac{C(\tau) - C(\tau, \tau)}{C(\tau)},$$

where $C(\tau, \tau)$ are the consumption expenditures of newborns. As discussed in detail in Grafeneder-Weissteiner and Prettnner (2013), the difference between the individual and the aggregate savings behavior is captured by the generational turnover correction term $\mu\Omega$. Older individuals are wealthier because of their accumulated capital holdings and therefore they can afford higher consumption levels than younger individuals. Since dying older generations are replaced by newborns with no capital holdings at each moment, *aggregate* consumption growth is smaller than *individual* consumption growth.

2.2 Migration decision

Each individual maximizes real earnings by choosing her migration rate based on the real wage differences between the regions (see, for example, Baldwin and Forslid, 2000). We express real wages in terms of the country’s technology level $\bar{A} = A + A^*$, which does not change the sign of the real wage differential but it is analytically more convenient to work with normalized expressions because they remain constant along a balanced growth path. To conceptualize the migration behavior, the foreign representative individual of cohort t_0 chooses her migration rate $m^F(\tau) = \dot{l}^F(\tau)$ so as to solve the following maximization problem

$$\begin{aligned} \max_{m^F(\tau)} \quad & \int_{t_0}^{\infty} e^{-(\rho+\mu^*)(\tau-t_0)} \left\{ l^F(\tau)\hat{w}(\tau) + \left[\frac{1}{\bar{N}} - l^F(\tau) \right] \hat{w}(\tau)^* - \frac{\gamma m^F(\tau)^2}{2} \right\} d\tau \\ \text{s.t.} \quad & m^F(\tau) = \dot{l}^F(\tau), \end{aligned} \quad (4)$$

where $l^F(\tau)$ is labor supply in the home region. Labor supply in the foreign region is given by $1/\bar{N} - l^F(\tau)$ because of our normalization $\bar{L} = 1$. The first two terms in the expression within curly brackets refer to the wage income of the individual for her endogenous choice of labor allocation between the two regions, while the third term refers to the quadratic costs of reallocating labor from one region to the other, i.e., it captures the migration costs. Note that $\hat{w}(\tau) = w(\tau)/\bar{A}$ and $\hat{w}(\tau)^* = w(\tau)^*/\bar{A}$ denote normalized real wages at home and abroad with w and w^* referring to the real wage rate in the corresponding region. The parameter γ allows migration costs to be varied.

By the same token, the domestic representative individual of cohort t_0 chooses her migration rate $m(\tau) = \dot{l}(\tau)$ so as to solve the following maximization problem

$$\begin{aligned} \max_{m(\tau)} \quad & \int_{t_0}^{\infty} e^{-(\rho+\mu^*)(\tau-t_0)} \left\{ \left[\frac{1}{\bar{N}} - l(\tau) \right] \hat{w}(\tau) + l(\tau)\hat{w}(\tau)^* - \frac{\gamma m(\tau)^2}{2} \right\} d\tau \\ \text{s.t.} \quad & m(\tau) = \dot{l}(\tau), \end{aligned} \quad (5)$$

where $l(\tau)$ is labor supply in the foreign region and labor supply in the home region is thus given by $1/\bar{N} - l(\tau)$.

We suppress time arguments from now on whenever this is possible. Solving the two maximization problems (see Appendix A.1) results in the following system of differential equations that fully describe the economy-wide migration decisions

$$\dot{W} = (\rho + \mu)W - (\hat{w}^* - \hat{w}), \quad (6)$$

$$i = \frac{W}{\gamma}, \quad (7)$$

$$\dot{W}^F = (\rho + \mu^*)W^F - (\hat{w} - \hat{w}^*), \quad (8)$$

$$i^F = \frac{W^F}{\gamma}. \quad (9)$$

In this system, W and W^F are the costate variables representing the shadow value of migration for the home and foreign individuals. At the steady state, these shadow values equal the present value of the real wage differential. Consequently, at the symmetric equilibrium in which both regions have the same fraction of workers and share the same parameter values, we have that $W = W^F = 0$ is fulfilled. Since the share of labor in the home region is given by

$$s_L \equiv \frac{L}{\bar{L}} = L = \left(\frac{1}{\bar{N}} - l \right) \frac{\bar{N}}{2} + l^F \frac{\bar{N}}{2} = \frac{1}{2} + \frac{\bar{N}}{2}(l^F - l), \quad (10)$$

the aggregate migration equation can be derived from Equations (7) and (9) as

$$\dot{s}_L = \frac{\bar{N}}{2\gamma}(W^F - W). \quad (11)$$

We observe that migration between the two regions prevails as long as there is a real wage differential. A larger wage differential acts as catalyst of migration, whereas higher costs of migration, as represented by a higher γ , slow down the inter-regional flow of labor.

2.3 Production technology and profit maximization

The production side of the economy in the two regions closely follows the one described in Prettner (2013) and it is a simplified version of the production side of Romer (1990). The final goods sector in the home region (analogous expressions hold in the foreign region) produces a consumption good with workers and machines as inputs according to the production function

$$Y = L_Y^{1-\alpha} \int_0^A x_i^\alpha di, \quad (12)$$

where Y denotes output of the consumption good (the numéraire), L_Y refers to labor used in final goods production, A is the level of technology, x_i is the amount of a specific machine i used in final goods production, and α is the elasticity of output with respect to the machines of type i . Profit maximization and perfect competition in the final goods sector imply that the production factors are employed up to the point at which they earn their marginal product. The factor rewards are thus given by

$$w_Y = (1 - \alpha) \frac{Y}{L_Y}, \quad (13)$$

$$p_i = \alpha L_Y^{1-\alpha} x_i^{\alpha-1}, \quad (14)$$

where w_Y refers to the real wage rate paid in the final goods sector and p_i to prices paid for intermediate inputs.

The intermediate goods sector follows Dixit and Stiglitz (1977) and is monopolistically competitive because each firm in the sector produces a differentiated machine. Consequently, the production of a machine requires to purchase the corresponding machine-specific blueprint from the innovation sector as a fixed up-front investment before the production process can start. After this fixed cost has been incurred, firms can transform one unit of physical capital into one unit of the specific machine for which they own the blueprint. Profit maximization then yields the following standard optimal pricing policy for intermediate goods producers

$$p_i = \frac{r}{\alpha}, \quad (15)$$

where $1/\alpha$ is the markup over marginal cost. Note that there is symmetry between firms in the sense that the right-hand side of Equation (15) is the same for all firms in the sector. Free entry into the intermediate goods sector ensures that the discounted stream of operating profits equals the fixed cost for the up-front investment of purchasing the blueprint from the innovation sector. The results so far imply that the capital stock in the home region is given by $K = Ak$ because there are A different intermediate goods produc-

ers, each of which employs k units of capital. Consequently, the region-wide production function becomes

$$Y = K^\alpha (AL_Y)^{1-\alpha}, \quad (16)$$

in which the stock of blueprints appears as labor-augmenting.

Following Romer (1990), the innovation sector employs L_A scientists to discover the new blueprints for the intermediate goods producers that aim to enter the market. Depending on the productivity of scientists denoted by λ , the employment levels of scientists, and intertemporal knowledge spillovers, the stock of blueprints evolves according to

$$\dot{A} = \lambda AL_A. \quad (17)$$

Due to perfect competition in the innovation sector, profit maximization leads to the following relation between the price that intermediate goods producers charge for blueprints (p_A) and the wage rate of scientists (w_A):

$$w_A = p_A \lambda A. \quad (18)$$

We observe that, *ceteris paribus*, the wage rate of scientists increases if innovation firms charge a higher price for their blueprints. Since labor is homogenous, this leads to a flow of labor from the final goods sector into the innovation sector until wages are again equalized. The corresponding rise of L_A implies that innovation speeds up [see Equation (17)]. This, in turn, leads to a higher rate of firm entry in the corresponding region such that economic growth gains momentum.

2.4 Market clearing and balanced growth

Since workers in the final goods sector and in the innovation sector share the same characteristics, a labor market equilibrium is characterized by inter-sectoral wage equalization, i.e., $w_A = w_Y = w$. Furthermore, the equilibrium price of blueprints is equal to the discounted stream of operating profits in the intermediate goods sector because otherwise intermediate goods producing firms would either make losses (if p_A were higher) or extra profits (if p_A were lower). In equilibrium, we therefore have that

$$p_A = \frac{\pi}{r - \delta}. \quad (19)$$

By combining Equations (14), (15), the production technology in the intermediate goods sector ($x_i = k_i$ for all firms i), the fact that the region-wide capital stock is given by $K = Ak$, and that the profits of intermediate goods producers amount to $p_i x_i - r k_i$ for all firms i , we get equilibrium operating profits in the intermediate goods sector as

$$\pi = (1 - \alpha) \alpha \frac{Y}{A}. \quad (20)$$

Finally, labor market clearing requires that the regional labor supply is either employed in the innovation sector or in the final goods sector such that $L = L_A + L_Y$. Combining these results yields endogenous labor supply in the innovation sector as

$$L_A = \max \left\{ L - \frac{r - \delta}{\alpha \lambda}, 0 \right\}. \quad (21)$$

If the interest rate is very high and the productivity of scientists is very low, the endogenous amount of labor employed in the innovation sector could become negative from a mathematical point of view. However, since this is not a meaningful economic result, the corresponding region would then just end up in the corner solution of $L_A = 0$ as reflected by the formulation of Equation (21).

If the region is in the interior solution, an increase in the market interest rate reduces the employment level of scientists because the future operating profits in the intermediate goods sector are discounted more heavily. This implies that the price that research firms can charge for blueprints decreases, which reduces the wages in the innovation sector and leads to an outflow of labor toward the final goods sector to restore wage equalization. This, in turn, reduces technological progress, intermediate firm entry, and economic growth in the corresponding region. Furthermore, we see that the size of the region matters, i.e., there exists a scale effect, because L shows up on the right hand side of Equation (21). Higher labor supply in a region implies that more scientists are available to work on new ideas. This raises technological progress and hence economic growth and represents a strong agglomerative force between regions in knowledge-based economies.

Along a balanced growth path, all aggregate variables grow at a constant rate $g \equiv \dot{C}/C = \dot{A}/A = \dot{Y}/Y$. The aggregate Euler equation (3) pins down the interest rate along such a balanced growth path as

$$r = g + \mu\Omega + \rho + \delta. \quad (22)$$

Plugging the interior solution of (21) into (17) and substituting for the interest rate from Equation (22) provides an equation in the growth rate g and the generational turnover term Ω . Noting that $\Omega = (\rho + \mu)K/C$ and using the economy's resource constraint

$$\dot{K} = Y - C - \delta K = \frac{rK}{\alpha^2} - C - \delta K, \quad (23)$$

where $Y = rK/\alpha^2$ follows from Equations (14), (15), and (16), allows us to solve for the constant growth rates and interest rates in the home and foreign region along a balanced

growth path. Recalling that $s_L = L$ and $1 - s_L = L^*$, these expressions are given by

$$g = \frac{\alpha \lambda s_L - \alpha^2 \delta - \alpha \rho + \delta - \Phi + \alpha^2 \lambda s_L}{2\alpha(1 + \alpha)}, \quad (24)$$

$$g^* = \frac{\alpha \lambda (1 - s_L) - \alpha^2 \delta - \alpha \rho + \delta - \Xi + \alpha^2 \lambda (1 - s_L)}{2\alpha(1 + \alpha)}, \quad (25)$$

$$r = \frac{(1 + \alpha)^2 \delta + \Phi + \alpha[\rho + (1 + \alpha)\lambda s_L]}{2(1 + \alpha)}, \quad (26)$$

$$r^* = \frac{(1 + \alpha)^2 \delta + \Xi + \alpha[\rho + (1 + \alpha)\lambda(1 - s_L)]}{2(1 + \alpha)}, \quad (27)$$

where

$$\Phi = \sqrt{4\alpha^3 \mu(\mu + \rho) + [(\alpha - 1)(\alpha \delta + \delta + \alpha \lambda s_L) - \alpha \rho]^2}, \quad (28)$$

$$\Xi = \sqrt{4\alpha^3 \mu^*(\mu^* + \rho) + \{(\alpha - 1)[\alpha \delta + \delta + \alpha \lambda (1 - s_L)] - \alpha \rho\}^2}. \quad (29)$$

As shown by Prettner (2013) for a single closed economy, an increase in longevity (a decrease in μ) positively effects the long-run growth rate because an expanded planning horizon raises savings. This in turn leads to a higher capital stock and a lower equilibrium interest rate. The lower interest rate implies that operating profits in the intermediate goods sector are discounted less heavily such that the price that research firms can charge for blueprints increases. As mentioned above, this raises the wage rate for scientists such that labor flows into the innovation sector, which spurs technological progress and economic growth. By the same token, all parameters that increase the employment of scientists (λ , α , and δ) have a positive impact on growth rates, whereas the parameter ρ , which reduces savings and hence raises the equilibrium interest rate, has a negative effect on the growth rate.

3 Equilibrium dynamics

The equilibrium dynamics of the two regions are captured by a four-dimensional system in the variables s_L , W , W^F , and s_A , where the home share of technology is given by $s_A \equiv A/(A + A^*)$. In Appendix A.2 we derive the law of motion for s_A as

$$\dot{s}_A = s_A(1 - s_A)(g - g^*), \quad (30)$$

where g and g^* are determined according to Equations (24) and (25). Equation (30), the law of motion for the share of labor in the home region (s_L) given by Equation (11), and the laws of motion for the shadow values of migration (W and W^F) as represented by

Equations (6) and (8) constitute the following dynamic system

$$\begin{aligned}\dot{s}_L &= \frac{\bar{N}}{2\gamma}(W^F - W), \\ \dot{W} &= (\rho + \mu)W - (\hat{w}^* - \hat{w}), \\ \dot{W}^F &= (\rho + \mu^*)W^F - (\hat{w} - \hat{w}^*), \\ \dot{s}_A &= s_A(1 - s_A)(g - g^*).\end{aligned}$$

In Appendix A.3, we derive the normalized real wages (\hat{w} and \hat{w}^*) and show that they are given by

$$\hat{w} = s_A \frac{Y(0)}{A(0)} \frac{(1 - \alpha)\alpha\lambda}{r - \delta}, \quad (31)$$

$$\hat{w}^* = (1 - s_A) \frac{Y(0)^*}{A(0)^*} \frac{(1 - \alpha)\alpha\lambda}{r^* - \delta}. \quad (32)$$

Note that r and r^* are determined according to Equations (26) and (27), while $Y(0)$ and $Y^*(0)$ denote the initial levels of output and $A(0)$ and $A^*(0)$ are the initial levels of technology in both regions.

4 Migration, demography, and agglomeration

We analyze the dynamics of agglomeration between two initially symmetric regions. This implies that there are no regional differences with respect to the parameters and starting. In particular, we assume that both regions share the same demographic structure, i.e., $\mu = \mu^*$. Altogether, this means that economic activity is initially spread out and there is full dispersion. The dynamic system is then given by

$$\dot{s}_L = \frac{\bar{N}(W^F - W)}{2\gamma}, \quad (33)$$

$$\dot{W} = (\rho + \mu)W - (\hat{w}^* - \hat{w}), \quad (34)$$

$$\dot{W}^F = (\rho + \mu)W^F - (\hat{w} - \hat{w}^*), \quad (35)$$

$$\dot{s}_A = (1 - s_A)s_A(g - g^*), \quad (36)$$

where equilibrium wages and growth rates are given by Equations (24), (25), (31), and (32) with $\mu^* = \mu$, $Y^*(0) = Y(0)$, and $A^*(0) = A(0)$.

From Equation (33), we immediately see that a steady state of the system requires $W = W^F$. Together with the resulting equations from solving $\dot{W} = \dot{W}^F = 0$, this implies that normalized real wages must equalize. This is certainly true for the symmetric outcome with an equal division of labor and technology across regions, i.e., for $s_L = 0.5$ and $s_A = 0.5$. Moreover, the regional growth rates are the same such that $g = g^*$ and thus $\dot{s}_A = 0$. As a result, the symmetric outcome with $s_L = 0.5$, $W = W^F = 0$, and $s_A = 0.5$ represents a steady-state equilibrium.

Checking the stability properties of this steady state yields important insights on the possibility of agglomeration in such a two-region innovation-based growth framework with migration. In particular, if the symmetric steady state is unstable, any slight perturbation leads to agglomeration processes with one region becoming the core and the other the periphery. To get an intuition for these dynamics, consider a situation in which wages are the same in both regions such that nobody has an incentive to migrate to the other region. Then a technological innovation occurs in one region but not in the other such that wages slightly rise in the former, while they stay constant in the latter. Consequently, individuals from the region with the lower wage have an incentive to migrate to the region with the higher wage. In case that this movement of labor leads to a rise of wages in the labor-sending region and to a decline of wages in the labor-receiving region (to the extent that wages equalize again), the symmetric equilibrium is stable. By contrast, if the move of labor leads to a rise of wages in the labor-receiving region and to a fall of wages in the labor-sending region, the symmetric equilibrium is unstable and further migration is promoted. This is also the case if a rise of wages in the labor-sending region and a decline of wages in the labor-receiving region occurs but to an extent that is insufficient to restore inter-regional wage equalization.

We analyze the stability properties of the steady state by following the classical approach (see Barro and Sala-i-Martin, 2004) of linearizing the non-linear dynamic system given by Equations (33)-(36) around the symmetric equilibrium and then by evaluating the eigenvalues of the corresponding 4×4 Jacobian matrix

$$J_{sym} = \begin{pmatrix} J_{11} & J_{12} & J_{13} & J_{14} \\ J_{21} & J_{22} & J_{23} & J_{24} \\ J_{31} & J_{32} & J_{33} & J_{34} \\ J_{41} & J_{42} & J_{43} & J_{44} \end{pmatrix}. \quad (37)$$

Solving the characteristic equation yields four eigenvalues whose signs and nature fully characterize the system's local dynamics around the symmetric steady-state equilibrium. Since there are two predetermined variables and two jump variables, saddle path stability prevails if two eigenvalues of the Jacobian matrix are positive and two eigenvalues are negative. The corresponding eigenvalues are shown in Figure 2 for the parameter values $\alpha = 0.3$, $\lambda = 0.35$, $\delta = 0.05$, $\rho = 0.03$, $\gamma = 1$, $\bar{N} = 1$, $Y(0) = 1$, $A(0) = 1$, and a mortality rate ranging from 0 to 1. These parameter values are chosen in line with the literature on economic growth (see, for example, Jones, 1995; Acemoglu, 2009; Grossmann et al., 2013) and such that the growth rate of the two regions at the symmetric equilibrium would amount to 1.7%. The figure reveals that the system is always unstable for the given parameter values such that there would be a tendency for a clustering of economic activity. This explains the natural tendency for core-periphery structures and therefore cities to emerge in knowledge-based economies.

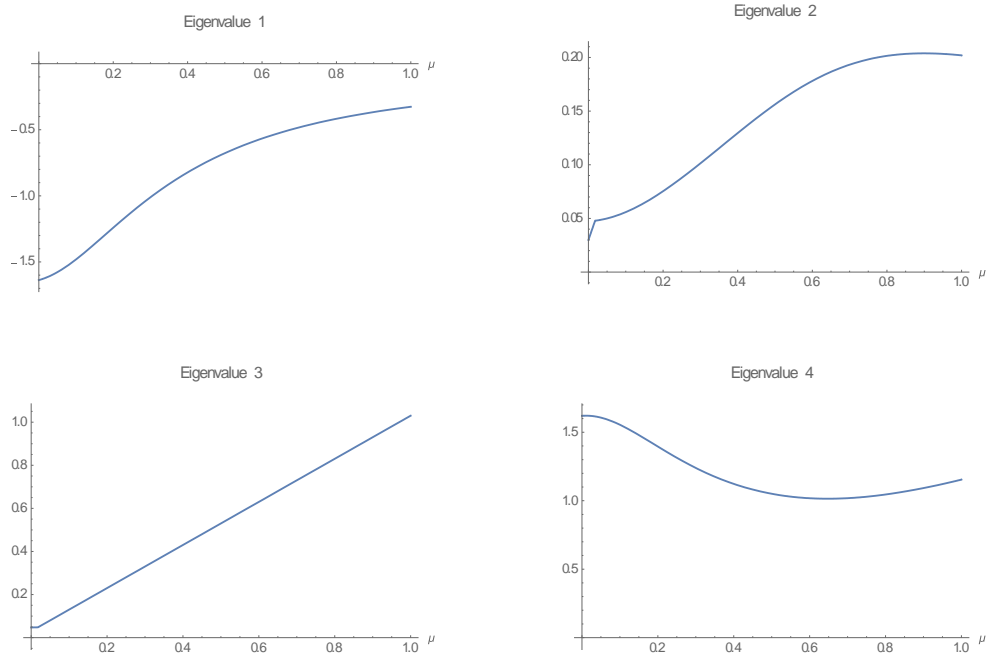


Figure 2: Eigenvalues of the Jacobian matrix defined in Equation (37) for the parameter values $\alpha = 0.3$, $\lambda = 0.35$, $\delta = 0.05$, $\rho = 0.03$, $\gamma = 1$, $\bar{N} = 1$, $Y(0) = 1$, $A(0) = 1$, and a varying mortality rate $\mu \in [0, 1]$.

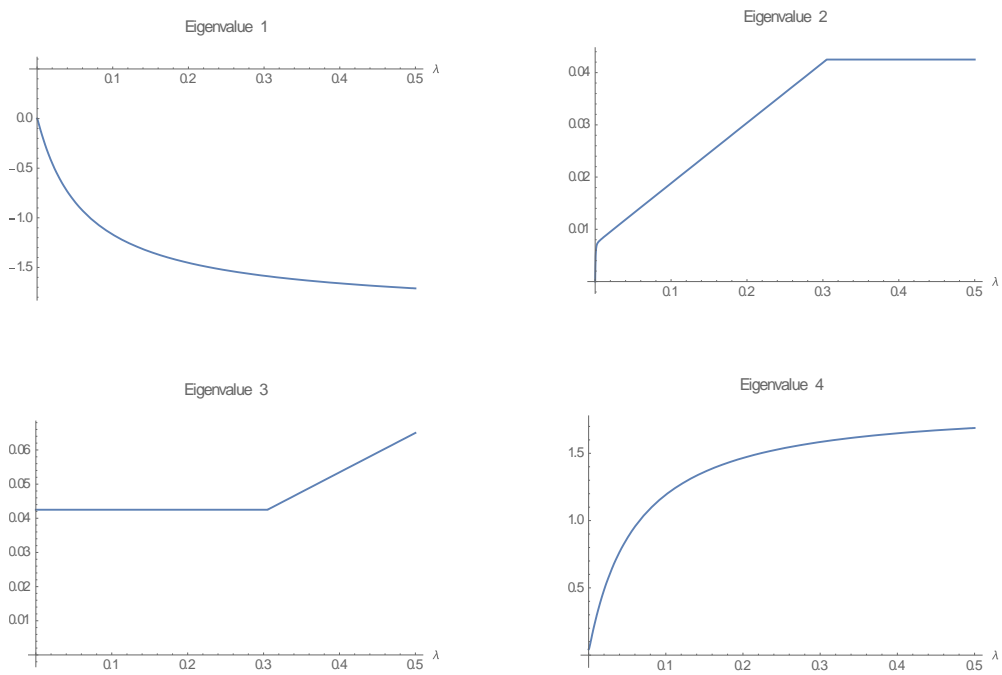


Figure 3: Eigenvalues of the Jacobian matrix defined in Equation (37) for the parameter values $\alpha = 0.3$, $\delta = 0.05$, $\rho = 0.03$, $\mu = 0.0125$, $\gamma = 1$, $\bar{N} = 1$, $Y(0) = 1$, $A(0) = 1$, and a varying productivity of scientists $\lambda \in [0, 0.5]$.

Intuitively, if $s_L = 0.5$ is slightly perturbed, this affects the equilibrium wage differential via the following channels: First, the wage differential increases further if s_L rises because the labor-receiving region is able to sustain a higher rate of technological progress and therefore faster economic growth. This is a strong pro-agglomerative force. Second, the wage differential decreases due to the generational turnover effect described in detail by Grafeneder-Weissteiner and Prettnner (2013). In particular, countries with a younger population structure accumulate less capital. This implies that their wealth and expenditure levels are lower, while the interest rate is higher. Due to the fact that the future profits of new innovations are discounted by the market interest rate, this effect reduces technological progress and thus economic growth. This is an anti-agglomerative force. Third, the migration costs as determined by γ are also an anti-agglomerative force. Altogether, the pro-agglomerative force of faster economic growth due to the scale effect is stronger than the anti-agglomerative forces that only compensate for a part of the pro-agglomerative force. This reasoning suggests that the agglomeration force is weaker if the productivity of scientists, and hence technological progress and economic growth are lower. We investigate this in Figure 3 for a mortality rate $\mu = 0.0125$, giving rise to a life expectancy of 80 years, which is close to the average life expectancy in industrialized countries. Now we let the productivity of scientists λ vary from 0 to 0.5.

Note that, in case of $\lambda = 0$, the number of scientists in a region has no effect on economic growth such that immigration does not induce a rise in the gap between the wages of the labor-receiving region and the labor-sending region. The symmetric outcome is stable and dispersion of economic activity prevails. In this case, which corresponds to a less developed economy (and not to a modern knowledge-based economy), economic activity would spread out and no core-periphery structure would emerge. However, as soon as λ becomes positive, we have a positive growth effect of agglomeration and the two weaker dispersion forces. Again, one eigenvalue of the Jacobian matrix would be negative and the other three would be positive. Thus, the symmetric equilibrium becomes unstable and agglomeration sets in. This is the case of modern knowledge-based economies in which urbanization rates are high and wages in cities tend to be higher than wages on the countryside.

5 Conclusions

We explain the joint evolution of rising per capita GDP, increasing life expectancy, and the ongoing process of urbanization in industrialized countries within a two-region innovation-driven economic growth model with inter-regional labor migration. Individuals choose their optimal consumption growth path and the inter-sectoral labor allocation between final goods production and innovation. In the second optimization step, they compare the wage levels that they can attain in both regions and base their migration decision upon the wage differential. In case that the wages are reduced by migrating to the other region, they stay and the current pattern of dispersion remains the same. Otherwise, they choose

to migrate, which changes the pattern of agglomeration and dispersion. We find that the symmetric allocation between the two regions is an equilibrium. However, this equilibrium becomes unstable as soon as the productivity of innovation becomes positive, which would be the case in a modern knowledge-based economy. Thus, our model helps to explain the natural tendency for core-periphery structures to emerge in modern knowledge-based economies.

Acknowledgments

We would like to thank Ingrid Kubin, Karin Mayr, Alexia Prskawetz, Michael Rauscher, and Stefan Wrzaczek for useful comments and suggestions. Financial support has been provided by the Vienna Science and Technology Fund (WWTF) in its “Mathematics and...” Call 2007. Furthermore, Klaus Prettnner gratefully acknowledges the support provided by the Faculty of Business, Economics, and Social Sciences at the University of Hohenheim within the research area “Inequality and Economic Policy Analysis (INEPA)”

A Derivations

A.1 Optimal migration

We suppress time arguments throughout the appendix. The current-value Hamiltonian of the migration problem of the domestic representative individual is

$$H = l\hat{w}^* + \left(\frac{1}{N} - l\right)\hat{w} - \frac{\gamma m^2}{2} + Wm$$

and the first order conditions pin down to

$$\begin{aligned} \frac{\partial H}{\partial m} \stackrel{!}{=} 0 &\Rightarrow m = \frac{W}{\gamma}, \\ \frac{\partial H}{\partial W} \stackrel{!}{=} i &\Rightarrow m = i, \\ \frac{\partial H}{\partial l} \stackrel{!}{=} (\rho + \mu)W - \dot{W} &\Rightarrow \dot{W} = (\rho + \mu)W - (\hat{w}^* - \hat{w}). \end{aligned}$$

This can be reformulated as a system of the following two differential equations

$$\begin{aligned} \dot{W} &= (\rho + \mu)W - (\hat{w}^* - \hat{w}) \\ i &= \frac{W}{\gamma}. \end{aligned}$$

The migration problem of the foreign representative individual can be solved accordingly.

A.2 Home technology share

The technology share of the home region and its evolution are given by

$$\begin{aligned}
 s_A &\equiv \frac{A}{\bar{A}} = \frac{A}{A + A^*}, \\
 \dot{s}_A &= \frac{\dot{A}\bar{A} - \dot{\bar{A}}A}{(\bar{A})^2} \\
 &= \frac{\dot{A}}{\bar{A}} - \frac{\dot{\bar{A}}}{\bar{A}} s_A \\
 &= g s_A - s_A [g s_A + g^*(1 - s_A)] \\
 &= s_A(1 - s_A)(g - g^*).
 \end{aligned}$$

A.3 Wages

From Equations (18), (19), (20), and (22), we derive wages in both economies as

$$\begin{aligned}
 w \equiv w_A = w_Y &= p_A \lambda A \\
 &= \frac{(1 - \alpha) \alpha \lambda Y}{r - \delta}, \\
 \Rightarrow w^* \equiv w_A^* = w_Y^* &= \frac{(1 - \alpha) \alpha \lambda Y^*}{r^* - \delta}.
 \end{aligned}$$

Therefore, the normalized home wage is given by

$$\begin{aligned}
 \hat{w} &= \frac{(1 - \alpha) \alpha \lambda Y}{r - \delta} \frac{A}{\bar{A}} \\
 &= \frac{(1 - \alpha) \alpha \lambda Y}{r - \delta} \frac{Y}{A} s_A \\
 &= \frac{(1 - \alpha) \alpha \lambda Y(0) e^{g\tau}}{r - \delta} \frac{Y(0) e^{g\tau}}{A(0) e^{g\tau}} s_A \\
 &= \frac{(1 - \alpha) \alpha \lambda Y(0)}{r - \delta} \frac{Y(0)}{A(0)} s_A,
 \end{aligned}$$

where $Y(0)$ and $Y^*(0)$ denote the initial levels of output and $A(0)$ and $A^*(0)$ denote the initial levels of technology in both regions. In a similar way we can derive \hat{w}^* .

References

- Acemoglu, D. (2009). *Introduction to Modern Economic Growth*. Princeton University Press.
- Aghion, P. and Howitt, P. (1992). A model of growth through creative destruction. *Econometrica*, Vol. 60(No. 2):323–351.
- Aghion, P. and Howitt, P. (2005). *Handbook of Economic Growth, Volume 1A*, chapter

- 2: “Growth with Quality-Improving Innovations: An Integrated Framework”, pages 68–110.
- Baldwin, R. E. (1999). Agglomeration and endogenous capital. *European Economic Review*, Vol. 43(No. 2):253–280.
- Baldwin, R. E. and Forslid, R. (2000). The Core-Periphery Model and Endogenous Growth: Stabilizing and Destabilizing Integration. *Economica*, Vol. 67:307–324.
- Baldwin, R. E., Forslid, R., Martin, P., Ottaviano, G., and Robert-Nicoud, F. (2003). *Economic Geography & Public Policy*. Princeton University Press.
- Barro, R. J. and Sala-i-Martin, X. S. (2004). *Economic Growth*. The MIT Press. Cambridge, Mass.
- Blanchard, O. J. (1985). Debt, deficits and finite horizons. *Journal of Political Economy*, Vol. 93(No. 2):223–247.
- Bloom, D. E., Canning, D., Mansfield, R. K., and Moore, M. (2007). Demographic change, social security systems, and savings. *Journal of Monetary Economics*, Vol 54:92–114.
- Bucci, A. (2008). Population growth in a model of economic growth with human capital accumulation and horizontal R&D. *Journal of Macroeconomics*, Vol. 30(No. 3):1124–1147.
- Buiter, W. H. (1988). Death, birth, productivity growth and debt neutrality. *The Economic Journal*, Vol. 98:179–293.
- Commission on Growth and Development (2008). *The Growth Report: Strategies for Sustained Growth and Inclusive Development*.
- Dalgaard, C. and Kreiner, C. (2001). Is declining productivity inevitable? *Journal of Economic Growth*, Vol. 6(No. 3):187–203.
- Diamond, P. A. (1965). National debt in a neoclassical growth model. *American Economic Review*, Vol. 55(No. 5):1126–1150.
- Dixit, A. K. and Stiglitz, J. E. (1977). Monopolistic competition and optimum product diversity. *American Economic Review*, Vol. 67(No. 3):297–308.
- Gancia, G. and Zilibotti, F. (2005). *Handbook of Economic Growth*, chapter 3: “Horizontal Innovation in the Theory of Growth and Development”, pages 112–170. Elsevier.
- Grafeneder-Weissteiner, T. and Prettnner, K. (2013). Agglomeration and demographic change. *Journal of Urban Economics*, Vol. 74:1–11.
- Grossman, G. M. and Helpman, E. (1991). Quality ladders in the theory of economic growth. *Review of Economic Studies*, Vol. 58(No. 1):43–61.

- Grossmann, V., Steger, T. M., and Trimborn, T. (2013). Dynamically optimal R&D subsidization. *Journal of Economic Dynamics and Control*, Vol. 37:516–534.
- Heijdra, B. and Romp, W. (2008). A life-cycle overlapping-generations model of the small open economy. *Oxford Economic Papers*, Vol. 60(No. 1):88–121.
- Heijdra, B. J. and Ligthart, J. A. (2006). The macroeconomic dynamics of demographic shocks. *Macroeconomic Dynamics*, Vol 10(No 3):349–370.
- Heijdra, B. J. and Mierau, J. O. (2010). Growth effects of consumption and labor-income taxation in an overlapping-generations life-cycle model. *Macroeconomic Dynamics*, Vol. 14:151–175.
- Heijdra, B. J. and Mierau, J. O. (2011). The Individual Life Cycle and Economic Growth: An Essay on Demographic Macroeconomics. *De Economist*, Vol. 159(No. 1):63–87.
- Heijdra, B. J. and Mierau, J. O. (2012). The individual life-cycle, annuity market imperfections and economic growth. *Journal of Economic Dynamics and Control*, Vol. 36:876–890.
- Heijdra, B. J., Mierau, J. O., and Reijnders, L. S. M. (2013). A Tragedy of Annuitization? Longevity Insurance in General Equilibrium. *Macroeconomic Dynamics*. Forthcoming.
- Heijdra, B. J. and Romp, W. E. (2009). Retirement, pensions, and ageing. *Journal of Public Economics*, Vol. 93(No. 3-4):586–604.
- Heijdra, B. J. and van der Ploeg, F. (2002). *Foundations of Modern Macroeconomics*. Oxford University Press. Oxford.
- Howitt, P. (1999). Steady endogenous growth with population and R&D inputs growing. *Journal of Political Economy*, Vol. 107(No. 4):715–730.
- Jones, C. I. (1995). R&D-based models of economic growth. *Journal of Political Economy*, Vol. 103(No. 4):759–783.
- Kortum, S. (1997). Research, patenting and technological change. *Econometrica*, Vol. 65(No. 6):1389–1419.
- Krugman, P. (1991). Increasing returns and economic geography. *Journal of Political Economy*, Vol. 99(No. 3):483–499.
- Krugman, P. and Venables, A. J. (1995). Globalization and the inequality of nations. *The Quarterly Journal of Economics*, Vol. 110(No. 4):857–880.
- Martin, P. and Ottaviano, G. (1999). Growing locations: Industry location in a model of endogenous growth. *European Economic Review*, Vol. 43:281–302.

- Mierau, J. O. and Turnovsky, S. J. (2014a). Capital accumulation and the sources of demographic change. *Journal of Population Economics*, Vol. 27:857–894.
- Mierau, J. O. and Turnovsky, S. J. (2014b). Demography, growth, and inequality. *Economic Theory*, Vol. 55:29–68.
- Ottaviano, G., Tabuchi, T., and Thisse, J.-F. (2002). Agglomeration and trade revisited. *International Economic Review*, Vol. 43:409–435.
- Ottaviano, G. and Thisse, J.-F. (2002). Integration, agglomeration and the political economics of factor mobility. *Journal of Public Economics*, Vol. 83:429–456.
- Ottaviano, G. I. P. and Thisse, J.-F. (2001). On economic geography in economic theory: increasing returns and pecuniary externalities. *Journal of Economic Geography*, Vol. 1:153–179.
- Peretto, P. F. (1998). Technological change and population growth. *Journal of Economic Growth*, Vol. 3(No. 4):283–311.
- Pflüger, M. and Südekum, J. (2008). Integration, agglomeration and welfare. *Journal of Urban Economics*, Vol. 63:544–566.
- Prettner, K. (2013). Population aging and endogenous economic growth. *Journal of Population Economics*, Vol. 26(No. 2):811–834.
- Puga, D. (1999). The rise and fall of regional inequalities. *European Economic Review*, Vol. 43:303–334.
- Rivera-Batiz, L. A. and Romer, P. M. (1991). Economic integration and endogenous growth. *The Quarterly Journal of Economics*, 106(No. 2):531–555.
- Romer, P. (1986). Increasing returns and long-run growth. *Journal of Political Economy*, Vol. 94(No. 5):1002–1037.
- Romer, P. (1990). Endogenous technological change. *Journal of Political Economy*, Vol. 98(No. 5):71–102.
- Segerström, P. S. (1998). Endogenous growth without scale effects. *American Economic Review*, Vol. 88(No. 5):1290–1310.
- Strulik, H. (2005). The role of human capital and population growth in R&D-based models of economic growth. *Review of International Economics*, Vol. 13(No. 1):129–145.
- Strulik, H., Prettnner, K., and Prskawetz, A. (2013). The past and future of knowledge-based growth. *Journal of Economic Growth*, Vol. 18(No. 4). 411–437.
- Tabuchi, T. and Thisse, J.-F. (2002). Taste heterogeneity, labor mobility and economic geography. *Journal of Development Economics*, Vol. 69:155–177.

Yaari, M. E. (1965). Uncertain lifetime, life insurance and the theory of the consumer. *The Review of Economic Studies*, Vol. 32(No. 2):137–150.

Young, A. (1998). Growth without scale effects. *Journal of Political Economy*, Vol. 106(No. 5):41–63.

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 Interorganizational Management & Performance

Research Areas (since 2017)

INEPA	“Inequality and Economic Policy Analysis”
TKID	“Transformation der Kommunikation – Integration und Desintegration”
NegoTrans	“Negotiation Research – Transformation, Technology, Media and Costs”
INEF	“Innovation, Entrepreneurship and Finance”

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

No.	Author	Title	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

No.	Author	Title	Inst
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
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

No.	Author	Title	Inst
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
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 Stanistic, Vincent Geloso	CONTINUITY UNDER A DIFFERENT NAME. THE OUTCOME OF PRIVATISATION IN SERBIA	520
11-2016	David E. Bloom Michael Kuhn Klaus Prettnner	THE CONTRIBUTION OF FEMALE HEALTH TO ECONOMIC DEVELOPMENT	520
12-2016	Franz X. Hof Klaus Prettnner	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 Marczyk	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 Prettnner	THE IMPLICATIONS OF AUTOMATION FOR ECONOMIC GROWTH AND THE LABOR SHARE	520
19-2016	Klaus Prettnner Andreas Schaefer	HIGHER EDUCATION AND THE FALL AND RISE OF INEQUALITY	520
20-2016	Vadim Kufenko Klaus Prettnner	YOU CAN'T ALWAYS GET WHAT YOU WANT? ESTIMATOR CHOICE AND THE SPEED OF CONVERGENCE	520

No.	Author	Title	Inst
01-2017	Annarita Baldanzi Alberto Bucci Klaus Prettner	CHILDRENS HEALTH, HUMAN CAPITAL ACCUMULATION, AND R&D-BASED ECONOMIC GROWTH	INEPA
02-2017	Julius Tennert Marie Lambert Hans-Peter Burghof	MORAL HAZARD IN VC-FINANCE: MORE EXPENSIVE THAN YOU THOUGHT	INEF
03-2017	Michael Ahlheim Oliver Frör Nguyen Minh Duc Antonia Rehl Ute Siepmann Pham Van Dinh	LABOUR AS A UTILITY MEASURE RECONSIDERED	520
04-2017	Bohdan Kukharskyy Sebastian Seiffert	GUN VIOLENCE IN THE U.S.: CORRELATES AND CAUSES	520
05-2017	Ana Abeliansky Klaus Prettner	AUTOMATION AND DEMOGRAPHIC CHANGE	520
06-2017	Vincent Geloso Vadim Kufenko	INEQUALITY AND GUARD LABOR, OR PROHIBITION AND GUARD LABOR?	INEPA
07-2017	Emanuel Gasteiger Klaus Prettner	ON THE POSSIBILITY OF AUTOMATION-INDUCED STAGNATION	520
08-2017	Klaus Prettner Holger Strulik	THE LOST RACE AGAINST THE MACHINE: AUTOMATION, EDUCATION, AND INEQUALITY IN AN R&D-BASED GROWTH MODEL	INEPA
09-2017	David E. Bloom Simiao Chen Michael Kuhn Mark E. McGovern Les Oxley Klaus Prettner	THE ECONOMIC BURDEN OF CHRONIC DISEASES: ESTIMATES AND PROJECTIONS FOR CHINA, JAPAN, AND SOUTH KOREA	520
10-2017	Sebastian Till Braun Nadja Dwenger	THE LOCAL ENVIRONMENT SHAPES REFUGEE INTEGRATION: EVIDENCE FROM POST-WAR GERMANY	INEPA
11-2017	Vadim Kufenko Klaus Prettner Vincent Geloso	DIVERGENCE, CONVERGENCE, AND THE HISTORY-AUGMENTED SOLOW MODEL	INEPA
12-2017	Frank M. Fossen Ray Rees Davud Rostam-Afschar Viktor Steiner	HOW DO ENTREPRENEURIAL PORTFOLIOS RESPOND TO INCOME TAXATION?	520
13-2017	Steffen Otterbach Michael Rogan	SPATIAL DIFFERENCES IN STUNTING AND HOUSEHOLD AGRICULTURAL PRODUCTION IN SOUTH AFRICA: (RE-) EXAMINING THE LINKS USING NATIONAL PANEL SURVEY DATA	INEPA
14-2017	Carolina Castagnetti Luisa Rosti Marina Töpfer	THE CONVERGENCE OF THE GENDER PAY GAP – AN ALTERNATIVE ESTIMATION APPROACH	INEPA

No.	Author	Title	Inst
15-2017	Andreas Hecht	ON THE DETERMINANTS OF SPECULATION – A CASE FOR EXTENDED DISCLOSURES IN CORPORATE RISK MANAGEMENT	510
16-2017	Mareike Schoop D. Marc Kilgour (Editors)	PROCEEDINGS OF THE 17 TH INTERNATIONAL CONFERENCE ON GROUP DECISION AND NEGOTIATION	NegoTrans
17-2017	Mareike Schoop D. Marc Kilgour (Editors)	DOCTORAL CONSORTIUM OF THE 17 TH INTERNATIONAL CONFERENCE ON GROUP DECISION AND NEGOTIATION	NegoTrans
18-2017	Sibylle Lehmann-Hasemeyer Fabian Wahl	SAVING BANKS AND THE INDUSTRIAL REVOLUTION IN PRUSSIA SUPPORTING REGIONAL DEVELOPMENT WITH PUBLIC FINANCIAL INSTITUTIONS	520
19-2017	Stephanie Glaser	A REVIEW OF SPATIAL ECONOMETRIC MODELS FOR COUNT DATA	520
20-2017	Dario Cords	ENDOGENOUS TECHNOLOGY, MATCHING, AND LABOUR UNIONS: DOES LOW-SKILLED IMMIGRATION AFFECT THE TECHNOLOGICAL ALIGNMENT OF THE HOST COUNTRY?	INEPA
21-2017	Micha Kaiser Jan M. Bauer	PRESCHOOL CHILD CARE AND CHILD WELL-BEING IN GERMANY: DOES THE MIGRANT EXPERIENCE DIFFER?	INEPA
22-2017	Thilo R. Huning Fabian Wahl	LORD OF THE LEMONS: ORIGIN AND DYNAMICS OF STATE CAPACITY	520
23-2017	Matthias Busse Ceren Erdogan Henning Mühlen	STRUCTURAL TRANSFORMATION AND ITS RELEVANCE FOR ECONOMIC GROWTH IN SUB-SHARAN AFRICA	INEPA
24-2017	Sibylle Lehmann-Hasemeyer Alexander Opitz	THE VALUE OF POLITICAL CONNECTIONS IN THE FIRST GERMAN DEMOCRACY – EVIDENCE FROM THE BERLIN STOCK EXCHANGE	520
25-2017	Samuel Mburu Micha Kaiser Alfonso Sousa-Poza	LIVESTOCK ASSET DYNAMICS AMONG PASTORALISTS IN NORTHERN KENYA	INEPA
26-2017	Marina Töpfer	DETAILED RIF DECOMPOSITION WITH SELECTION – THE GENDER PAY GAP IN ITALY	INEPA
27-2017	Robin Jessen Maria Metzling Davud Rostam-Afschar	OPTIMAL TAXATION UNDER DIFFERENT CONCEPTS OF JUSTNESS	INEPA
28-2017	Alexander Kressner Katja Schimmelpfeng	CLUSTERING SURGICAL PROCEDURES FOR MASTER SURGICAL SCHEDULING	580
29-2017	Clemens Lankisch Klaus Prettnner Alexia Prskawetz	ROBOTS AND THE SKILL PREMIUM: AN AUTOMATION-BASED EXPLANATION OF WAGE INEQUALITY	INEPA

No.	Author	Title	Inst
30-2017	Ann-Sophie Adelhelm Melanie Bathelt Mirjam Bathelt Bettina Bürkin Sascha Klein Sabrina Straub Lea Wagner Fabienne Walz	ARBEITSWELT: DIGITAL – BELASTUNG: REAL? DER ERLEBTE WANDEL DER ARBEITSWELT INNERHALB DER IT-BRANCHE AUS SICHT DER ARBEITNEHMER	550
31-2017	Annarita Baldanzi Klaus Prettnner Paul Tscheuschner	LONGEVITY-INDUCED VERICAL INNOVATION AND THE TRADEOFF BETWEEN LIFE AND GROWTH	520
32-2017	Vincent Dekker Kristina Strohmaier	THE EFFECT OF TRANSFER PRICING REGULATIONS ON INTRA-INDUSTRY TRADE	520
01-2018	Michael D. Howard Johannes Kolb	FOUNDER CEOS AND NEW VENTURE MEDIA COVERAGE	INEF
02-2018	Peter Spahn	UNCONVENTIONAL VIEWS ON INFLATION CONTRAOL: FORWARD GUIDANCE, THE NEO- FISHERIAN APPROACH, AND THE FISCAL THEORY OF THE PRICE LEVEL	520
03-2018	Aderonke Osikominu Gregor Pfeifer	PERCEIVED WAGES AND THE GENDER GAP IN STEM FIELDS	INEPA
04-2018	Theresa Grafeneder- Weissteiner Klaus Prettnner Jens Südekum	THREE PILLARS OF URBANIZATION: MIGRATION, AGING, AND GROWTH	INEPA

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, Ansgar 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 WÄHRUNGSKRISEUNION 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, V́ctor G3mez	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 Fr3r, 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 Tykvov3	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 Poutr3 and A. G. de Kok	CAPABILITY-BASED GOVERNANCE PATTERNS OVER THE PRODUCT LIFE-CYCLE	IK
72-2013	Beatriz Fabiola L3pez Ulloa, Valerie M3ller 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. Fern3ndez-Alvira, Charalampos Hadjigeorgiou, Eva Kov3cs, 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 Prostoplow, 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
wiso@uni-hohenheim.de
wiso.uni-hohenheim.de