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Article

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Intereconomics

Suggested Citation: Mueller-Using, Susanne; Vöpel, Henning (2014) : The EU's migration and development policy: New approaches in economics for more effective public aid, Intereconomics, ISSN 1613-964X, Springer, Heidelberg, Vol. 49, Iss. 2, pp. 95-101, <http://dx.doi.org/10.1007/s10272-014-0491-1>

This Version is available at:
<http://hdl.handle.net/10419/141362>

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Susanne Mueller-Using and Henning Vöpel

The EU's Migration and Development Policy: New Approaches in Economics for More Effective Public Aid

Among the EU member states, increasing immigration has led to a recent debate over changes to European refugee and migration policies. The desire among the poor to escape from a hopeless economic and social situation in their home countries is the most common impetus for their migration. As the EU is the world's biggest donor of public development aid, new approaches in European development politics are much needed to increase the effectiveness of this aid and to create a sustainable improvement of the economic situation among the poor. This article focuses on a new approach to implement more efficient and cost-effective development strategies that include individual time preference as well as insights from behavioural and experimental economics.

The recent debate on the European refugee and migration policy has shown that member states still cannot agree on appropriate measures to respond to migration and refugee flows into the EU. However, the more difficult it becomes to address the situation within the EU, the more important it is for the EU to combat the root causes – especially those that are not linked to armed conflicts and political persecution but result from extreme poverty. The desire among the poor to escape from a hopeless economic and social situation in their home countries is the most common impetus for their migration. As the EU is the world's biggest donor of public development aid, new approaches in European development politics are much needed to increase the effectiveness of this aid and to create a sustainable improvement of the economic situation among the poor. Increasing aid effectiveness and generating long-term endogenous economic growth in less developed countries are primary goals of European development politics. This article focuses on a new approach to implement more efficient and cost-effective development strategies that include individual time preference as well as insights from behavioural and

experimental economics. Since poverty is passed on from one generation to the next due to short-term orientated investment behaviour, it will be shown that small interventions can counteract these effects and also potentially have a large impact on economic development as a whole. In this regard, it is important to understand households' decision-making and to identify the underlying transmissions channels. Furthermore, it will be shown that the design of more effective public aid must take into consideration the crucial role played by health.

The current situation in the EU

According to the United Nations Refugee Agency, there are currently around 42.5 million refugees worldwide. However, due to armed conflicts and political persecution, only 15.4 million of them are considered refugees within the definition of international law.¹ According to the International Labour Organisation, the number of international migrants is even higher and is estimated at approximately 232 million worldwide.² About 144 mil-

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* In order to combine the research fields of tropical medicine, development economics and health economics, the Hamburg Institute of International Economics (HWWI) and the Bernhard Nocht Institute for Tropical Medicine have established an interdisciplinary research community.

1 See UNO-Flüchtlingshilfswerk: Flüchtlinge weltweit – Zahlen und Fakten, 2013, available at <http://www.uno-fluechtlingshilfe.de/fluechtlinge/zahlen-fakten.html>, accessed 2 December 2013.

2 See International Labour Organization: Labour Migration and Development – Setting a course for the future, 2013, available at http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_222912.pdf, accessed 2 December 2013.

lion of them originate from less developed countries,³ and many of them left in order to seek a better future. Of these 144 million people, approximately 74 million migrated to more developed countries.⁴ Even after migrating to their destination countries, however, many migrants remain poor and confronted with socio-economic inequalities because they have no opportunities beyond low-skilled jobs in the informal sector.

Currently, the number of non-EU migrants living within the EU is estimated at approximately 30 million people, 22 million of whom originated from less developed countries.⁵ Figures 1a and 1b provide an overview of the countries of origin and how migration to the EU has changed since 1990. Among the EU member states, the increasing trend of inflows from outside has led to a recent debate over changes to European refugee and migration policies, with the main focus on new solutions to secure the EU borders and on the distribution of refugees. However, a consensus has not yet been found. Furthermore, improvements in common refugee and migration policies in the EU cannot change the real causes for escape and migration. To decrease the number of migrant workers, appropriate development strategies in the countries of origin are badly needed to improve the living conditions of the poor there.

To end poverty and hunger throughout the world, the United Nations established the Millennium Development Goals (MDGs) in 2005. But although the number of people living on less than 1.25 USD (PPP) a day was halved within the period 1990-2010, more than 20 per cent of the world's population still lives below this poverty line. The areas most seriously affected are mainly located in sub-Saharan Africa and South Asia, where 48.5 per cent and 31 per cent respectively continue to live in extreme poverty.⁶

As part of the international community, the European Union is obliged to contribute to achieving the MDGs.

3 As defined by the UN, the more developed regions comprise Europe, North America, Australia, New Zealand and Japan, and the less developed regions comprise Africa, Asia (excluding Japan), Latin America and the Caribbean plus Melanesia, Micronesia and Polynesia. For further details, see United Nations Population Division: World Urbanization Prospects: The 2009 Revision Population Database, 2010, available at <http://esa.un.org/wup2009/unup/index.asp?panel=5>, accessed 3 December 2013.

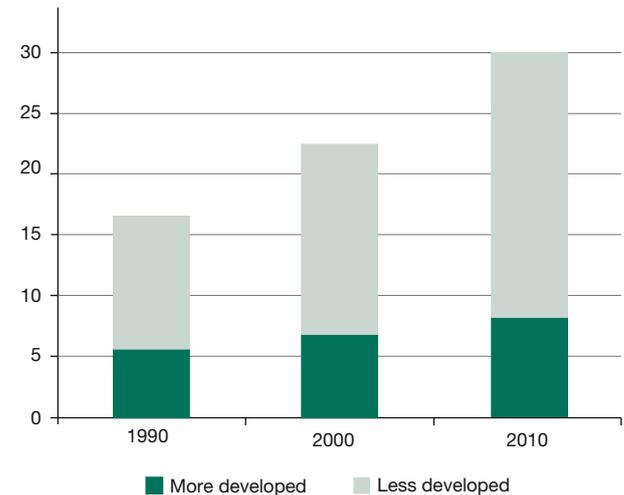
4 See United Nations Department of Economic and Social Affairs: Population Division, 2013, available at <http://esa.un.org/MigOrigin/>, accessed 22 November 2013.

5 Ibid.

6 See USAID: Rising Out of Poverty, 2012, available at <http://blog.usaid.gov/2012/05/rising-out-of-poverty/>, accessed 18 September 2013; and World Bank: Poverty, available at <http://data.worldbank.org/topic/poverty>, accessed 18 September 2013.

Figure 1a
EU immigrants from less and more developed countries

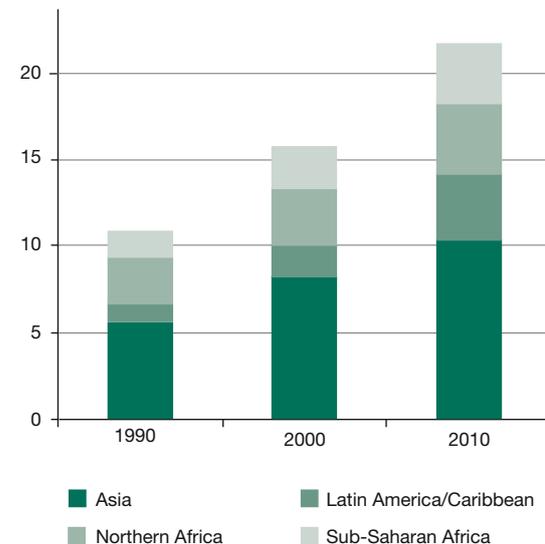
in millions



Source: United Nations Department of Economic and Social Affairs: Population Division, 2013, available at <http://esa.un.org/MigOrigin/>, accessed 22 November 2013.

Figure 1b
EU immigrants from selected regions

in millions



Source: United Nations Department of Economic and Social Affairs: Population Division, 2013, available at <http://esa.un.org/MigOrigin/>, accessed 22 November 2013.

With an annual budget of more than 50 billion euros, the EU, together with its member states, provides more than half of global public development aid and is thus the world's biggest donor.⁷ But due to the difficulties in international finance markets and the euro crisis, the debate on an effective European development policy has faded. Furthermore, some EU countries have demanded a reduction in development aid expenditures in order to lessen the burden on their federal budgets. The governments of Spain, Italy and Greece enacted the largest cuts to foreign aid, at 50 percent, 34 per cent and 17 per cent respectively.⁸ This trend is not universal, as seen in the push by British Prime Minister Cameron to increase foreign aid to 0.7 per cent of GDP. But unless fiscal constraints can be alleviated, foreign aid will always be a target of budget cuts.

The goal to increase Official Development Assistance (ODA) to 0.7 per cent of EU GNI by the year 2015 seems hardly achievable, as it reached only 0.43 per cent in 2012.⁹ Increasing expenditures on ODA seems to be difficult, especially for those states that have been the most seriously affected by the financial and economic crisis. But implementation of effective European development policies does not necessarily have to imply an increase in funds. Rather, the main objective is to increase the effectiveness of the aid, as called for by the European Commission¹⁰ as well as by many critics of current development strategies. Possible solutions may come from behavioural economics and experimental research in development economics, which both offer approaches to combat poverty more effectively.

Endogenising economic development

To address the causes of migration to the EU, sustainable and effective policies have to influence the economic and social situations in the countries of origin. Because individuals maximise their expected utility,

migration decisions are comparable to investment decisions. Based on Todaro's 1971 model, people (or workers) decide to migrate from rural to urban areas if the present value of the expected net income differential from migrating is positive.¹¹ Thus, the decision to migrate depends on the urban-rural income differential as well as on the (endogenously determined) probability of finding a job in the destination area. Therefore, improving the living conditions and income opportunities in the countries of origin directly affects and most likely reduces the incentive for the poor to migrate.

Accordingly, endogenising sustainable economic development is crucial for achieving more effective public aid. According to human capital models of endogenous growth theory, education is a key determinant of permanent economic growth. Becker and Mincer were the first economists to explain income disparities by differences in education and training.¹² Since then, a large number of empirical analyses have suggested a positive relation between higher education and an increase in per capita income,¹³ but recent studies have come to the conclusion that improving education is not the sole cause of economic growth. In fact, better education can be considered a result of economic growth rather than a cause.¹⁴ The primary problem of these analyses is that in focusing on education, they do not sufficiently consider other important human capital formation variables, such as individual health status.

In 1992 Mankiw, Romer and Weil were the first economists to point out that health is a relevant factor for economic growth as well as for human capital formation.¹⁵ Fogel and Barro separately came to the same conclu-

- 7 See European Commission: "In times of crisis, the EU must not forget the poorest in the world", says Commissioner Piebalgs. EU confirms its position as the world's largest aid donor in 2011, Press release, 2012, available at http://europa.eu/rapid/press-release_IP-12-348_en.htm?locale=en, accessed 27 September 2013.
- 8 See The Independent: European countries cut international aid, 2013, available at <http://www.independent.co.uk/news/world/europe/european-countries-cut-international-aid-8559031.html>, accessed 22 November 2013.
- 9 See Council of the European Union: Annual Report 2013 to the European Council on EU Development Targets – Council Conclusions, 2013, available at <http://www.independent.co.uk/news/world/europe/european-countries-cut-international-aid-8559031.html>, accessed 11 December 2013.
- 10 See European Union: Development and cooperation, 2013, available at http://europa.eu/pol/dev/index_en.htm, accessed 3 December 2013.

- 11 See M.P. Todaro: Income Expectations, Rural-Urban Migration and Employment in Africa, in: *International Labour Review*, Vol. 104, No. 5, 1971, pp. 387-413.
- 12 See G.S. Becker: *Human Capital: A Theoretical and Empirical Analysis, with special Reference to Education*. New York: National Bureau of Economic Research, Columbia University Press, 1964; and J.A. Mincer: *Schooling, Experience and Earnings*, National Bureau of Economic Research, Columbia University Press, New York 1974.
- 13 See, for example, the works of R.J. Barro: *Economic Growth in a Cross Section of Countries*, in: *Quarterly Journal of Economics*, Vol. 106, No. 2, 1991, pp. 407-443; J. Benhabib, M.M. Spiegel: *The Role of Human Capital in Economic Development: Evidence from Aggregate Cross-Country Data*, in: *Journal of Monetary Economics* Vol. 34, No. 2, 1994, pp. 143-174; or X. Sala-i-Martin: *I Just Ran Four Million Regressions*, National Bureau of Economic Research, Cambridge 1997.
- 14 See M. Bils, P.J. Klenow: *Does Schooling Cause Growth?*, in: *The American Economic Review*, Vol. 90, No. 5, 2000, pp. 1160-1183.
- 15 See G.N. Mankiw, D. Romer, D.N. Weil: *A Contribution to the Empirics of Economic Growth*, in: *The Quarterly Journal of Economics* Vol. 107, No. 2, 1992, pp. 407-437.

sion a few years later.¹⁶ Since then, several empirical studies have shown that health has positive impacts on labour markets and productivity, as well as on school attendance and human capital formation.¹⁷ Better health increases labour productivity not only directly but also indirectly, because education levels rise due to a large decrease in absenteeism and gains in cognitive skills. Better health also creates incentives for individuals to invest in their education, as they can assume that this investment will be profitable due to an increase in their life expectancy.¹⁸ Because individuals' current and future educational decisions crucially depend on their life expectancy, Cervellati and Sunde state that life expectancy is the key factor for long-term economic growth.¹⁹ In their intergenerational approach of 2005, economic growth and changes in life expectancy are modelled as an endogenous process, through which a mutually reinforcing interaction between formation of human capital, technical progress and life expectancy is derived. For societies with low levels of development as well as low life expectancies, this implies that the costs of human capital formation might be too high to achieve stronger long-term economic growth. As a consequence, countries might not have enough resources to combat diseases and to increase life expectancy, which may cause persistent poverty.²⁰ Thus, a gap forms between the individual and the social intergenerational time preference, because the latter exceeds the individual time horizon for human capital formation, and so spatial and temporal externalities arise.

Income per capita depends to a great degree on labour productivity measured in output per worker. Labour productivity in turn depends on capital deepening and technical progress, both of which increase workers' productivity. Growth accounting literature shows that, especially for developed economies, growth in real income is

largely attributable to total factor productivity.²¹ According to these findings, empirical evidence strongly supports the role of new technologies – as well as the ability of the labour force to use them – in fostering economic development. Consequently, institutional barriers to the accumulation of human capital must be overcome.²² In poorer countries, stagnation of per capita income is widely observed. This phenomenon can be at least partly explained by a low-skilled equilibrium in the labour market: companies have no incentive to invest in new technologies and innovations because of the constraints the companies face due to the lack of high-skilled workers in the labour market. If a high-skilled labour force cannot be replaced in case of illness, a loss in production is inevitable. Since there is no labour demand for high-skilled workers, households have no incentive to invest in their human capital. This kind of poor equilibrium can be changed into an endogenous and self-sustaining dynamic process towards a positive equilibrium through an exogenous improvement of the households' health status. Otherwise, the stagnation equilibrium arising from a market coordination problem may remain stable, similar to a Malthusian poverty trap.

Identifying transmission channels

Identifying the economic transmission channels of poverty-related diseases is essential to implementing appropriate measures for combating them more effectively and thus to reducing overall poverty. The transmission channels²³ arise from the individual behaviour to cope with severe illness in order to minimise current income risks. As a result, at the household level, investments with long-term returns are scarce. The strategies used to cope with severe illness entail temporal (intergenerational) and spatial externalities (between companies and households). Both affect human capital formation, decisions on education, labour supply and labour demand, and they therefore impact productivity and long-term economic growth.

16 R.W. Fogel: Economic Growth, Population Theory and Physiology: The Bearing of Long-Term-Process on the Making of Economic Policy, in: *American Economic Review*, Vol. 84, No. 3, 1994, pp. 369-395; and R.J. Barro: Health and Economic Growth, Mimeographie, Harvard University, 1996.

17 See for instance Bleakly's study on malaria and hookworm in H. Bleakly: Disease and Development: Evidence the American South, in: *Journal of European Economic Association*, Vol. 1, No. 2, 2003, pp. 376-386; or Miguel and Kremer's work on helminthic diseases in E. Miguel, M. Kremer: Worms: Identifying the Impacts on Education and Health in the Presence of Treatment Externalities, in: *Econometrica*, Vol. 72, No. 1, 2004, pp. 159-217.

18 See D.N. Weil: Accounting for the Effect of Health on Economic Growth, in: *Quarterly Journal of Economics*, Vol. 122, No. 3, 2007, pp. 1265-1306.

19 See M. Cervellati, U. Sunde: Human Capital Formation, Life Expectancy and the Process of Development, in: *American Economic Review*, Vol. 95, No. 5, 2005, pp. 1653-1672.

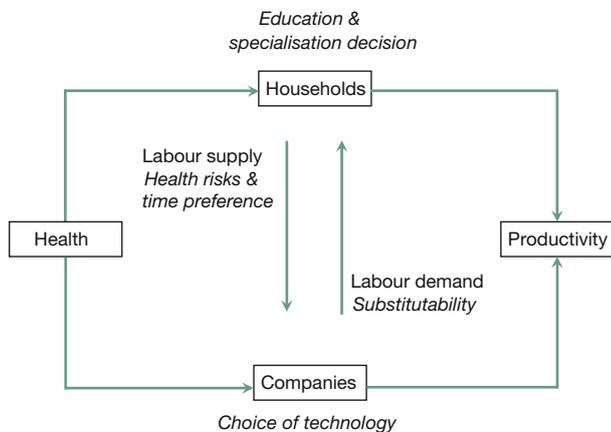
20 See P. Lorentzen, J. McMillan, R. Wacziarg: Death and Development, in: *Journal of Economic Growth*, Vol. 13, 2008, pp. 81-124.

21 See B. Bosworth, S.M. Collins: Accounting for Growth: Comparing China and India, in: *Journal of Economic Perspectives*, Vol. 22, No. 1, 2008, pp. 45-66.

22 See D.W. Jorgenson, K.M. Vu: Growth Accounting within the International Comparison Program, in: *ICP Bulletin*, Vol. 6, No. 1, 2009, pp. 3-13.

23 Initially, the concept of the "transmission channel" derives from monetary theory. Within the so-called transmission mechanism, monetary policies can be transferred onto economic variables via various transmission channels and result in different effects. Here, the concept of the transmission channel is to characterise a microeconomic process that transfers household decisions onto economic variables such as per capita income and productivity. The household decisions to be examined are the individual strategies to minimise income risks as a consequence of health risks.

Figure 2
Transmission channels



Source: Own elaboration.

As a consequence of poor health, frequent illness leads to absenteeism at work or school. As shown in Figure 2, absences due to illness can reduce individual educational opportunities at the household level in two ways: either directly, if the person being educated is ill, or indirectly, if this person is missing out on education because he or she has to replace a sick household member at work to minimise the current income losses. As a consequence, occupational specialisation fails to occur and related future income gains cannot be realised. This process is even reinforced if merely the perception of health risks and/or time preference appears to be high.

At the corporate level, absences due to illness have a negative impact because of either a reduction in hours worked or due to the additional replacement costs for workers if companies seek replacement manpower to sustain their production processes. However, as the required labour skills become more complex, finding suitable labour force substitutions becomes more problematic. This could potentially prompt more companies to refrain from performing complex production processes in order to avoid being vulnerable to absenteeism at work.²⁴ From the perspectives of both labour supply and labour demand, the necessity of substituting labour means that specialisation decisions are not being made and new technologies are not being implemented. As a consequence, there will be smaller increases in productivity and income.

²⁴ At the household as well as the corporate level, both effects might be responsible for a high share of low-income countries in the traditional primary production. For a good theoretical derivation, see, for example, M. Kremer: The O-Ring Theory of Economic Development, in: The Quarterly Journal of Economics, Vol. 108, No. 3, 1993, pp. 551-575.

Table 1
Income, life expectancy and child mortality, 2011

	Life expectancy at birth (in years)	Mortality rate among children aged under five (per 1000)
Low income countries	60	95
High income countries	80	6

Source: World Health Organization: World Health Statistics 2013 – Part III, 2013, p. 58-59.

Understanding decision-making

Particularly in developing countries, education and health care are hardly accessible among the poor. However, it is the poor who are most affected by many neglected diseases which are often poverty-related and the primary causes of mortality and morbidity, especially among children.²⁵ As has been previously shown, the economic impacts form a vicious circle: illness reduces present and future incomes due to the resulting reduction of individual education opportunities, which subsequently lowers the potential for higher future incomes. In other words, poverty increases the risk of illness and illness increases the risk of poverty. Table 1 shows how income and health status are related.

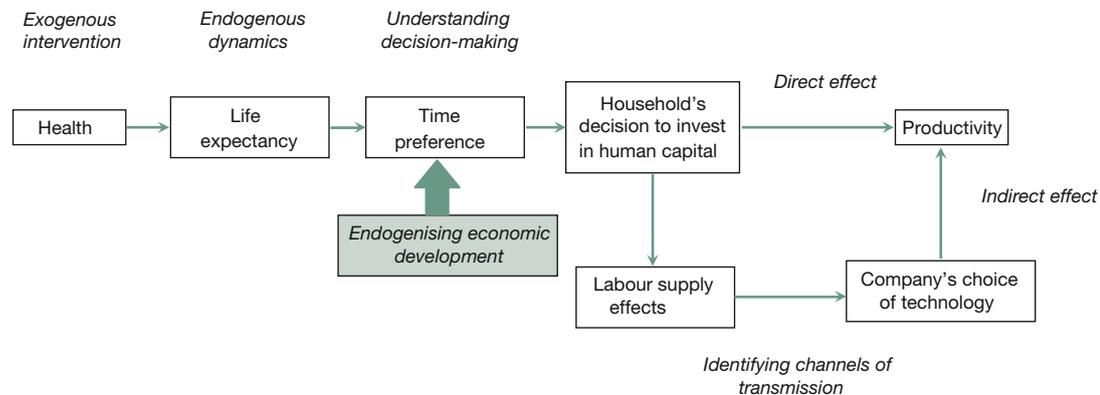
As a result, poverty is passed on from one generation to the next. Although a number of inexpensive and effective measures for prevention and therapy are available, financial restrictions create large barriers to disease control. However, as previously described, even small changes in exogenous conditions can induce dynamic effects on time preference and private households' investment habits. The latter include educational decisions that are made on the basis of individual optimisation strategies.²⁶

Within the scope of the model, as shown in Figure 3, it becomes clear that lowering the time-preference rate is a key factor for inducing endogenous growth via education and specialisation. Increased life expectancies create incentives for individuals to consider longer future time horizons into their decision-making. Health risks (and the perceptions of these risks) are crucial in this regard. On the one hand, short-term orientated investment behaviour seems to be rational, since merely staying alive is the predominant task for households. On

²⁵ See J.L. Ambrus, Sr., J.L. Ambrus, Jr.: Nutrition and Infectious Diseases in Developing Countries and Problems of Acquired Immunodeficiency Syndrome, in: Experimental Biology Medicine, Vol. 229, 2004, pp. 464-472.

²⁶ See M. Frenkel, H.-R. Hemmer: Grundlagen der Wachstumstheorie, Munich 1999, pp. 172-180.

Figure 3
The role of time preference in economic development



Source: Own elaboration.

the other hand, it is also important to understand the behavioural aspects and determinants of households' decision-making, because in practice some do not appear to be rational.

Analysing the behavioural aspects of individual decision-making provides a helpful approach, especially when it comes to the differences with the traditional assumptions of the *homo oeconomicus* model. Gathering data through field experiments allows us to gain more information on how individuals make their decisions and to test the time preference hypothesis. Duflo and Banerjee are widely known for applying this approach in development economics by conducting randomised control studies in field experiments.²⁷ Their results frequently provide surprisingly simple explanations for the individual behaviour of the poor. In addition, their experiments allow for a reliable estimate of the impact of varying a single factor within a complex set-up, thereby simplifying the evaluation of a certain programme's success.

One example concerning time preference is the 2005 experiment Duflo, Kremer and Robinson conducted in West Kenya.²⁸ They examined why farmers did not buy fertiliser even though they were aware that its usage would increase their harvest. To understand the farmers' decision-making, several hypotheses were tested. One group was offered the purchase of a fertiliser voucher at harvest time. Another group was offered the same deal

at fertiliser application time, while a third group received the same deal as the second group with the additional advantage of a 50 per cent discount on the fertiliser. In the first group, 40 per cent of the farmers chose to buy the voucher, while in the second group only 21 per cent did. In the discount group, 45 per cent opted for purchase, a percentage that is not significantly higher than the group of farmers paying full price who were able to purchase it at harvest time.

Another example has shown that tying micro-credits to the collateralisation of multiple people instead of giving them to individuals can create a positive self-selection and foster trust and economic cooperation in a community.²⁹ In India an experiment tested whether direct monitoring and financial incentives reduced teachers' school absences. Teachers were paid according to school attendance, which was documented with time-stamped photographs. From the results, it can be concluded that providing even such a simple incentive to focus on good attendance rather than giving in to other community demands is an effective tool to increase learning levels.³⁰ Both experiments show that institutionalised incentives can significantly contribute to lowering the collective and societal time preference in order to foster longer-term-oriented investment decisions.

Another interesting trend is the rise of charities dedicated to giving money to poor people with no strings attached, so as to maximise the impact of aid that actually

27 See A.V. Banerjee, E. Duflo: *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*, Public Affairs, 2011 for a good overview of their research and the related experiments.

28 E. Duflo, M. Kremer, J. Robinson: *Understanding Fertilizer Adoption: Evidence from Field Experiments*, Mimeo, 2005, Institute of Technology, Massachusetts 2005.

29 See F. Carpena, S.A. Cole, J. Shapiro, B. Zia: *Liability structure in small-scale finance. Evidence from a natural experiment*, World Bank Policy Research Working Paper No. 5427, 2010.

30 E. Duflo, R. Hanna, S.P. Ryan: *Incentives Work: Getting Teachers to Come to School*, in: *American Economic Review*, Vol. 102, No 4, 2012, pp. 1241-1278.

reaches people, while at the same time cutting down on corruption and other institutional problems. The basic finding of studies that have tried to analyse the efficacy of these charities is that poor people can make very sound long-term investment decisions once their basic needs are reasonably well provided for, which alleviates the pressure of living from day-to-day without the budget to plan ahead or to invest.³¹

Such findings clearly show that time-inconsistent preferences remain a problem. If the determinants of individual decision-making are not taken into account when the methods of development programmes are chosen, they may prove to be inefficient. However, the problem of time-inconsistent preferences is not solely associated with the poor in less developed countries. In industrialised countries, people are affected by inconsistent time preferences as well, but in order to counteract the causes and consequences, their societies have created a large number of measures and institutions positively affecting long-term investment decisions and, in addition, internalising the positive externalities and social benefits of longer-term decisions. This argument is in line with the debate on “good governance” and the quality of institutions.

As has been previously shown, targeting time preference is one of the key factors for sustainable development aid. However, in some cases, time preferences appear to be inconsistent, which makes it difficult to apply efficient aid strategies. As time-inconsistent preferences are a main topic in behavioural economics, this field offers methods such as field experiments to gain a better understanding of individual decision-making. Combining these methods with the latest findings on the role health has in endogenous growth theory could help to make development aid more efficient. Choosing appropriate development strategies requires a broad understanding of the interdependences and the impact channels between poverty and its determinants. At the same time, a lower time-preference rate has to be targeted.

Application of new approaches in development strategies

Changes in exogenous health risks considerably influence the decisions of endogenous households and

³¹ See J. Haushofer, J. Shapiro: Policy Brief: Impacts of Unconditional Cash Transfers, 2013, available at http://web.mit.edu/joha/www/publications/Haushofer_Shapiro_Policy_Brief_UCT_2013.10.22.pdf, accessed 3 December 2013.

companies with regard to specialisation and technology. This in turn has an important impact on long-term economic growth. Combining the findings from behavioural and experimental economics with human capital theory suggests that modifying exogenous variables can potentially lead to an endogenous and therefore self-sustaining change in individual behaviour. Since individual optimisation strategies are made on the basis of time preference, development strategies should focus on its increase. A key factor is the exogenous variable of better health status, which increases life expectancy and therefore also the time preference as an endogenous variable. As a consequence, investments with a longer-term return will become more profitable. Particularly with regard to education and specialisation decisions, the extension of individual time horizons provides strong incentives for the poor to invest in human capital formation. The accumulation of human capital subsequently positively affects labour markets and productivity via transmission channels and, as a result, increases economic growth.

Changes in endogenous dynamics can be initiated through small modifications of basic environmental conditions when a better understanding of transmission channels is achieved. Insights from behavioural economics are key to a development policy that is efficient and effective at the same time. Because health and education play important roles in economic development as well as in human capital formation and its determinants, possible interdependences and inter-related effects must be taken into account when it comes to the choice and implementation of suitable measures. An essential component for this is to gain a better understanding of how the poor make their economic decisions, especially with regard to the consistency of their time preference. Cost-effective and efficient development policies to fight poverty can only be created if these individual strategies are taken into account.

It has been shown that understanding household and company decision-making and identifying the transmission channels of how better health potentially affects productivity are crucial in order to make aid more cost-effective. New insights from behavioural and experimental economics have revealed that even small interventions may have a large impact. Simple external assistance in solving daily life problems can help people pursue longer-term plans that are not constantly in danger of being disrupted by occasional urgent problems. At the same time, when these kinds of problems arise, they can be solved more efficiently, preventing people from wasting time and scarce resources.