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The Effects of Economic Globalization on Female Human Capital

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The Effects of Economic Globalization on Female Human Capital

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When focusing on women, you can examine the effects of economic globalization of a demographic group that is disadvantaged in every society around the globe to a greater or lesser extent. The gap in opportunities does not only refer to job opportunities or wage gaps but also to the access to education and health infrastructures. The question is whether economic globalization, defined as higher flows in goods, services and capital across borders as well as the participation in international organizations like the United Nations, can improve the status of women and, more specifically, their possibilities to develop female human capital in the form of education and health.

"In no society do women enjoy the same opportunities as men."[1]

The term economic globalization is often used synonymous for trade openness. This paper would like to take a broader view of economic globalization by dividing it into different types of international trade, capital flows and the involvement in international organizations with focus on the latter. Trade refers to the movement of goods and services across countries. Capital flows may be separated into foreign direct investment (FDI) flows, usually regarded as strategic and long-lasting, and portfolio investment which is associated with short-term financing. International institutions, most importantly the United Nations (UN), may act as platforms for international socialization through which norms and ideas are spread.[2] The United Nations Organization was founded by 51 countries in 1945 and counted 192 member countries in 2011. Thus, the UN could be regarded as a global organization potentially creating a society with global norms and ideas.

A frequently raised question is which countries profit and which ones suffer from (different kinds of) globalization. Less frequently discussed, however, is the question of how the effects of globalization, positive or negative in nature, are distributed among demographic groups within countries. In 1995, the Human Development Report of the UN stated that "[f]or too long, it was assumed that […] benefits trickled down to all income classes – and that it was gender-neutral in its impact. Experience teaches otherwise. Wide income disparities and gender gaps stare us in the face in all societies."[3] There is no country in the world in which women enjoy the same rights as men.[4] Similarly, the effects of globalization are not equally distributed between the sexes.

This paper briefly reviews some recent research on the effects of economic globalization on women. It furthermore describes how the United Nations have cared about the status of women over time and introduces the Millennium Development Goals (MDGs) which were endorsed by 189 countries to improve peoples'

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[1] United Nations, "Human Development Report 1995", p. 1
[2] Gray, Kittilson and Sandholtz, "Women and Globalisation", p. 299
[3] United Nations, "Human Development Report 1995", p. 1
[4] United Nations, "Human Development Report 1995"

quality of life. MDGs, which refer to female human capital, i.e. educational level and health status of women, are described and the state and development of female human capital are illustrated by actual data. The last chapter investigates whether the MDGs really changed the path of development concerning health issues.

ECONOMIC GLOBALIZATION THROUGH A FEMALE LENS

As previously mentioned in the general discussion about the effects of economic globalization, two points of view exist with regard to how globalization affects disadvantaged groups in societies. Literature shows that supporters of economic globalization often argue that the benefits countries gain from opening up to the global market also improve the status of women. Some do not share this optimistic view to the same extent but state nevertheless that economic globalization allows women to enter the labor market and thus helps them to become independent by means of their own income – even if their income is lower than for men.

The share of women working in every kind of export industry has been rising sharply during the last years. Moghadam titles this development as 'feminization of labor' emerging from globalization and bringing more disadvantages to women than benefits. Moghadam argues that while women are more and more integrated into the labor market, no redistribution of household responsibilities can be observed. Furthermore, far more women than men work temporarily, take part-time jobs or work from home and are excluded from social security and training.[5] In Central America, Stenman also finds more negative effects of trade liberalization for women. The establishment of *maquilas* (assembly plants for international trade) had the positive effect that women gained (some) independence by entering the labor market. However, the disadvantages outweigh the benefits by far: women are faced with health problems as well as the double burden of child care and housekeeping duties combined with long working hours under bad working conditions at the plants.[6]

Some qualitative as well as quantitative analyses suggest positive effects of economic globalization for women. According to Neumayer and De Soysa, women in countries with a more liberalized trade environment enjoy more economic rights, especially labor rights, and are less frequently in danger of being exploited through forced labor than women in closed countries.[7] The World Trade Organization (WTO) found evidence that the wage gap between men and women in Mauritius, Mexico, Peru, the Philippines and Sri Lanka became smaller through trade liberalization. They concluded that the concern in regards to women suffering from trade liberalization as industries develop to more technological sectors could not be confirmed as wage convergence between the sexes was observed in the above mentioned five East Asian countries, in which "industry upgrading" development was salient - even though the share of women in these industries declined.[8] A frequent argument is that the increased involvement of women in the labor market goes hand in hand with more autonomy and independence as the relative income within the households shifts. Marchand, Rees and Riezman show that lower trade barriers lead to a higher labor demand for men and women. This does not only affect working men and women but also children as an increase in working mothers also increases the probability of children enjoying primary schooling.[9]

[5] Moghadam, "Gender and Globalisation", pp. 371-372
[6] Stenman, "Trade liberalization, gender"
[7] Neumayer and de Soysa, "Globalisation, Women's Economic", pp. 1510-1535
[8] Nordås, "Is trade liberalization"
[9] Marchand, Rees and Riezman, "Globalisation, Gender"

Some researchers doing broad quantitative analyses also take a broader view of economic globalization. Richards and Gelleny for instance examined a sample of 130 countries from 1982 to 2003 and investigated how the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM) changed due to impacts of trade openness, cross-border capital flows and global institutions.[10] The GDI, first published in 1995, is a gender-sensitive version of the Human Development Index (HDI), which is annually published in the Human development Report since 1990. It measures, just as the HDI, longevity in terms of life expectancy at birth in years, schooling and access to resources. The only difference to the HDI is that it penalizes gender inequality such that the index falls when the status of men and women shows a negative development or when the gender gap increases. Another index related to the status of women is the Gender Empowerment Measure (GEM), examining the opportunities of men and women to actively participate in political life.[11] Richards and Gelleny found that sixty-seven per cent of the statistically significant coefficients of economic globalization suggested a positive effect of globalization on the status of women. However, they also state that the relationship between the status of women and globalization depends on the type of globalization and the type of status indicator under consideration.[12] Trade openness and FDI flows, for example, have significant positive effects on both indices. A positive relationship can also be shown between the indicators related to the status of women and economic development - but the impact is rather modest. "One would likely not wish to wait for increases in national wealth to raise women's status [because] on average, one would have to wait 49 years to change GDP [gross domestic product] per capita sufficiently to increase GEM by 0.097 and GDI by 0.110."[13] Furthermore, a higher level of democracy seems to be beneficial to women. Portfolio investment shows a slightly negative significant effect on the GEM. Interestingly, the implementation of structural adjustment policies (SAPs) as demanded by the International Monetary Fund (IMF) or the World Bank does not show any significant effect. However, they also show that the GEM and the GDI are strongly correlated with GDP per capita, leading to the assumption that the UN suggest that wealth fosters gender equality in a linear way.[14]

This problem and the disadvantages of indices in terms of their concrete interpretations can be avoided by regressing not on the index but on its components. In accordance with this, Gray, Kittilson and Sandholtz examined the effect of globalization on women in a sample of 180 countries with data from 1975 to 2000. Life expectancy at birth is the UN measure for quality of life, reflecting, for example, nutrition, access to clean water or access to health care services. This measurement indicates the number of years a new-born would live if patterns of mortality at the time of its birth stayed the same throughout its life. The lowest life expectancy can be observed in countries which have to deal with severe HIV/AIDS epidemics, most notably sub-Saharan Africa. Improvements in life expectancy are generally positively related to the development of national income. This relationship does not, however, apply for the education of women which is often tied to cultural (especially religious) differences. A measurement for education is the illiteracy rate of people aged fifteen years and older. Illiteracy rates among women vary widely around the globe - from about eighty per cent in Niger and Burkina Faso to less than five per cent, for example, in Northern Europe in the year 2000. Religious traditions also play a role in regards to the participation of women in political and working life. These traditions have often been weakened by (former) Marx-

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[10] Richards and Gelleny, "Women's Status", pp. 855–876
[11] United Nations, "Human Development Report 1995", p. 73
[12] Richards and Gelleny, "Women's Status", pp. 855–876
[13] Richards and Gelleny, "Women's Status", p. 867
[14] Richards and Gelleny, "Women's Status"

ist/communist nations, by industrialization and the demand of capitalist countries for cheap labor.[15]

Structured along the different types of economic globalization, Gray, Kittilson and Sandholtz find that higher trade ratios are associated with significant improvements in female life expectancy and female illiteracy rates. But trade openness does not show any significant effects on the share of female workers in the labor force and on the share of women in parliament. FDI inflows show ambiguous effects. Moreover, longer histories of political rights for women, especially voting rights, are accompanied by sharp reductions in female illiteracy rates and higher life expectancies. Gray, Kittilson and Sandholtz do also account for institutional globalization by creating a variable that adds up the years of a country being a member of the World Bank with the number of years of being a member of the UN. This measure for integration in a 'global society' shows highly positive and significant effects on the literacy rates of women, also when controlling for male literacy rates. A second measure of a 'consensus upon global beliefs' that could benefit women was the ratification of the Convention for the Elimination of All Forms of Discrimination against Women (CEDAW), showing that women highly profit from improvements in all measures related to the status of women in countries having signed and ratified the CEDAW.[16]

THE UNITED NATIONS AND THE STATUS OF WOMEN

The United Nations Organization was founded by 51 countries in 1945. Already in 1946, a sub-commission focusing on the status of women was established under the Commission on Human Rights, which was transformed to the Commission on the Status of Women (CSW) in June 1946. Establishing a separate commission dealing with women's political, social, economic and civil rights proved to be successful. For example, the principle of 'equal pay for equal work' became legally binding in 1951. In 1952, the Convention on Political Rights of Women was established. This was the first international law assigning women the same rights as men to vote at elections but also to be a candidate to be elected. Most notably, during the United Nations Decade for Women (1976-1985) the Convention for the Elimination of All Forms of Discrimination against Women (CEDAW) was drafted, which came into effect in 1981.[17] Gray, Kittilson and Sandholtz found that the ratification of the latter was a significant driving force for the development of the status of women.[18] By 1980, the United Nations Fund for Women (UNIFEM) and the International Research and Training Institute for the Advancement of Women (INSTRAW) were newly founded organizations working specifically on women's issues.

In 1995, an overwhelming number of people participated in the Fourth World Conference on Women in Beijing: 6,000 delegates from 189 governments, more than 4,000 Non-Governmental Organizations (NGOs) representatives and 4,000 media representatives.[19] Women organized themselves around the globe. Discrimination of women was not silently accepted anymore. Even if people argue that organizations as big as the UN are clumsy in decision making processes and thus for making a difference in the lives of women, one should not forget about the impact of communication, especially of worldwide communication as is the case with the UN. Improvements for women might be achieved very slowly but they are

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[15] Gray, Kittilson and Sandholtz, "Women and Globalisation"
[16] Gray, Kittilson and Sandholtz, "Women and Globalisation"
[17] UN Women, "History of the Commission"
[18] Gray, Kittilson and Sandholtz, "Women and Globalisation", p. 326
[19] UN Women, "History of the Commission"

observable nevertheless, and both, achievements and remaining gaps, are communicated to the public. Communication is the basis for the formation of interest groups and allows the interactive construction of global norms, ideas and values. And even if collectively determined goals are not internalized in an economy, ratified conventions may help women to claim their rights at their governments.

At the end of the 20th century, the 189 member states of the UN agreed on the importance of (female) human capital.[20] Multiple research papers put human capital on a level with the education of people. Some include health as a second type of human capital. Both, education and health, enter the UN measures for the status of women, both contribute substantially to the quality of life and, most importantly, both influence each other. This is why both measures should be examined carefully. Five out of eight Millennium Development Goals (MDGs) specified in the Millennium Summit follow-up report in 2001 directly address female human capital. The MDGs represent human basic needs and rights to be achieved all over the world until 2015.[21] To evaluate whether progress is made towards the MDGs as planned or whether specific obstacles have to be overcome, Millennium Development Goals Reports (MDG Reports) were set up. In these reports, regions of developing regions including countries in transition are compared with developed regions. According the UN Statistics Division, developing regions encompass Africa, Asia (excluding Japan), the Caribbean, Central and South America as well as Melanesia, Micronesia and Polynesia (i.e. Oceania excluding Australia and New Zealand). Australia and New Zealand, Europe, Japan and Northern America are categorized as developed regions.[22] The following sections present and discuss some data and results published in the latest MDG Report of 2010, henceforth shortly referred to as MDG Report.

EDUCATION OF WOMEN

Education of the female population is subject in two MDGs. Goal II (Achieve universal primary education) contains the target to ensure that boys and girls alike will be able to attend primary school for a full course in 2015. The MDG Report shows that the rate of children in school age for primary school, who are also enrolled in school courses, rose from 82% in 1999 to 89% in 2008 in developing regions, with lowest enrolment rates in sub-Saharan Africa[23] and South Asia.[24] As the overall enrolment rates rise, so does the rate of girls enrolled in school. Nevertheless, 53% of the out-of-primary school-population worldwide is female, with extremely high rates in some regions like Northern Africa with 66%.

The United Nations collected household data of 42 countries and classified these by area (rural or urban) and by their income levels. Independently of gender, the probability for children to be out of school is two times higher in rural regions compared to urban areas and 3.5 times higher for children from families in the lowest wealth-quintile compared to children from households in the highest wealth quintile. However, girls are more likely than boys to be out of school in every class of wealth and in each area.[25]

Goal III (Promote gender equality and empower women) includes a sub-target to eliminate the gender gap in education in primary and secondary schooling

[20] United Nations, "Growth"
[21] United Nations, "United Nations Millennium"
[22] United Nations Statistics Division, "Composition"
[23] The UN Statistics Division defines sub-Saharan Africa as all of Africa excluding northern Africa, consisting of Algeria, Egypt, Libya, Morocco, South Sudan, Sudan, Tunisia and Western Sahara, but including the Sudan
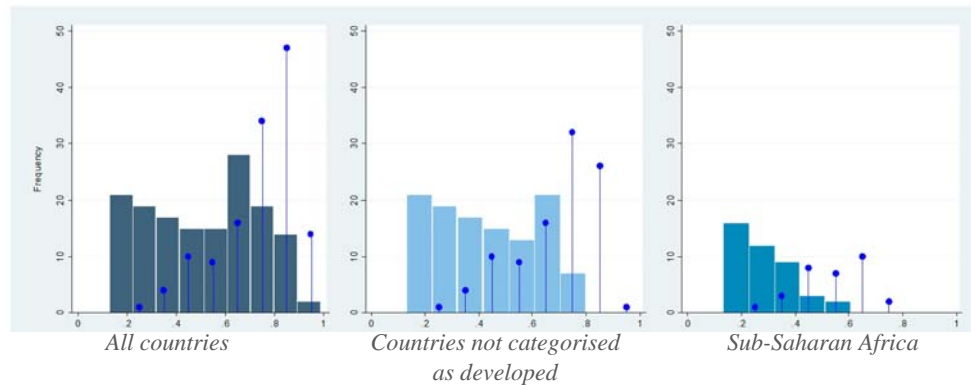[24] United Nations, "The Millennium", pp.16-18
[25] United Nations, "The Millennium", pp.16-18

by 2005 and in tertiary schooling by 2015. In developing regions, the number of girls in relation to boys rose in every educational sector but still missed the target ratio that should have already been realized in 2005. Oceania, sub-Saharan Africa and Western Asia are among the regions missing the targets for primary and secondary schooling equality, partly showing even increasing gender gaps. These regions are also those with the lowest overall enrolment rates. Not surprisingly, the possibilities for women in these regions to pass a tertiary degree are even worse.[26]

Figure 1 illustrates how the picture of the educational sector changes when controlled for the gender gap. It compares the Education Index published for the year 2010 (drop-lines) with the inequality-adjusted Education Index 2010 (blue shaded histograms), both published by the UN. The indices can take the values from 0 to 1, displayed on the x-axis, with a higher value indicating a better educational situation as they capture literacy rates among adults and gross enrolment rates in primary and secondary schooling[27]. The gap between these two indices is due to inequalities between the sexes. As expected, the index values shift to the left in every region of the world, from developed to least developed regions, when differences in the achievements among men and women are 'penalized'.

Figure 1
Education Index 2010

| | *All countries* | *Countries not categorised as developed* | *Sub-Saharan Africa* |

Drop-lines: Education Index 2010; Blue shaded bars: Inequality-adjusted Education Index 2010
Data Source: UNDP http://hdrstats.undp.org

In conclusion, school enrolment rates have increased in every country of the world during the last decade, leading to more girls being enrolled in school. Nevertheless, it is not realistic that the target of equalizing the opportunities for education of girls and boys will be achieved by 2015.

WOMEN'S HEALTH

Goal V (Improve maternal health) focuses on health services that should be provided during pregnancy and while giving birth to reduce maternal deaths.[28] "Failure to provide these results in hundreds of thousands of needless deaths each

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[26] United Nations, "The Millennium", pp. 20-25

[27] The Education Index is a weighted average of the Adult literacy (ALR) index with 2/3 and the Gross enrolment (GER) index with a weight of 1/3, which are computed as (actual value – minimum value)/(maximum value – minimum value) where for both the ALR index and the GER index the maximum value is 100 (meaning that 100% of all adults are literate in the case of ALR, and that 100% of all children in school age are enrolled in school accounting for primary, secondary and tertiary education in the case of GER, respectively) and the minimum value is equal 0.

[28] United Nations, "The Millennium", pp. 30-38

year – a sad reminder of the low status accorded to women in many societies."[29] For poor women in developing countries the risk of dying during pregnancy or while giving birth is up to 600 times higher than the risk that women face in industrialized countries. In Africa, this situation is exceptionally severe as approximately every 19th woman died due to complications during pregnancy or childbirth in 2002.[30] According to the MDG Report, half of all maternal deaths are due to hemorrhage and hypertension which could be avoided with qualified health care. Improvements were observable in all regions of the world. Although the number of women attended by skilled medical personnel in regions like Southern Asia and sub-Saharan Africa increased by about 70%, still more than half of the women in these regions give birth without medical care. In these regions, women from the wealthiest households are five times more likely to be assisted by skilled personnel at delivery.

Adolescent pregnancy is a crucial example of how types of human capital influence each other. It was found that girls aged 15 to 19 years with no education are four times more likely to give birth than girls of the same age enjoying secondary schooling. Many of these women would wish to delay pregnancy but do not have access to modern contraceptives. Estimates by the UN indicate that meeting this need would lead to a 27% decrease in maternal deaths each year as the number of unintended pregnancies would decline from 75 million to 22 million. Furthermore, one would expect the number of adolescent mothers, who are especially at risk of maternal death, to decline and the number of surviving children to rise.[31] In conclusion, higher education is associated with a lower number of (at least from a woman's perspective) unintended pregnancies, a smaller number of adolescent mothers and a reduction in maternal deaths, which reduces child mortality at delivery or during pregnancy. At the same time, parental educational level also reduces child mortality after delivery as a higher level of education is associated with a higher coverage with measles vaccinations. However, significant disparities in coverage of measles vaccinations between female and male children can be found in some South Asian countries, again pointing out the lower status of women.[32]

The relationship between education and adolescent pregnancy is not only applicable for one direction. A qualitative analysis for South Africa showed that teenage motherhood significantly reduces women's access for schooling. The major reason for girls dropping out of school is pregnancy. As there are no social facilities supporting teenage mothers, the return of these girls to school largely depends on the financial resources of their families. Besides the difficulties of managing parenting and schooling, girls are often not supported and encouraged by their parents to go back to school as they worry about their own status when their daughter's situation becomes public. Another reason why parents do not support their daughters may be due to cultural issues. There are still societies that value education of girls less than education of boys and deny the benefits of educating women. This lack of education negatively affects the career of women and thus leads to long-term consequences as poverty is transmitted from one generation to another. This problem is really severe in regions like South Africa where a third of the girls aged 18 years have already given birth at least once.[33]

Goal VI (Combat HIV/AIDS, malaria and other diseases) is mainly a goal to support Africa as 89% of all malaria deaths occurred on this continent and 72% of worldwide HIV infections were counted in sub-Saharan Africa, both in 2008. To relate these numbers with the above mentioned goals of reducing child and mater-

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[29] United Nations, "The Millennium", p. 30
[30] Simonis, Heide, "Frauen und Gesundheit", p.152
[31] United Nations, "The Millennium", pp. 30-38
[32] United Nations, "The Millennium", pp. 26-28
[33] Chigona and Chetty, "Girls' Education"

nal mortality, it has to be stressed that HIV/AIDS, malaria and heart disease were the reasons for about 18% of maternal deaths in developing regions and about 15% of all child deaths worldwide in 2008.[34] Furthermore, the proportion of women among the people infected with the virus increases ─ a fact, which is often associated with the link between gender and poverty.[35]

Goal VI directly addresses human capital in the form of men's and women's health. Indirectly, it also addresses female human capital in the form of education as it can be shown that more men than women know about HIV and how to protect against it. In 2001, a Special Session of the UN General Assembly on HIV/AIDS was held during which a target was set to educate people in health issues such that 95% of the population would know about the protection against HIV infection by 2010. Surveys showed that the achievements were far from target and that there are disparities in knowledge between the sexes. Less than one third of men and less than one fifth of women in developing regions, with the lowest level of 8% among young women in Northern Africa, reported that they knew how to prevent HIV infection.[36]

The spiral of the status of women and female human capital is a vicious circle. Health and education are very important indicators for the status of women. However, the present low status of women in (not only a few) countries around the globe impairs women's health and education!

This is once more shown by the social tolerance towards violence against women and girls. Even nowadays and in many countries, one in four young women reports that her first sexual experience was forced and violent which increases the danger of HIV infection. Child marriage also brings high danger with it as girls make their sexual experiences very early without having enjoyed any education especially on this subject.

Eighty per cent of children orphaned by AIDS (14.1 million children in 2010) live in sub-Saharan Africa. These children often face a dark destiny. They are more likely to be excluded from health and education infrastructures than children whose parents died because of other reasons. Without education and shelter, these children are more likely to suffer from bad nutrition, illnesses, child labor or sexual exploitation, which in turn again increases the danger of becoming infected by HIV. More than 90% of those children with HIV became infected during pregnancy, delivery or through breastfeeding. Thus, as already mentioned above, investment in female human capital reduces the danger for women and children, with the latter being an advantage for both the sexes.

Increases in funding[37], campaigns in which insecticide-treated mosquito nets were distributed for free, and antimalarial medicines have achieved a positive development in malaria control. However, estimations show that four times the amount of external funding in 2009 ($1.5 billion) would be needed for a full implementation of malaria-control interventions. According to the MDG Report, no difference in antimalarial treatment between boys and girls exist but again, children in urban areas and richer households are more likely to receive an appropriate treatment.[38]

To illustrate the gender gap in access to health infrastructure, Figure 2 compares the Life Expectancy Index 2010[39] (drop-lines) with the Inequality-adjusted

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[34] United Nations, "The Millennium", pp. 40-51
[35] Doyal, "Putting gender", p. 239
[36] United Nations, "The Millennium", pp. 40-51
[37] Mainly funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria
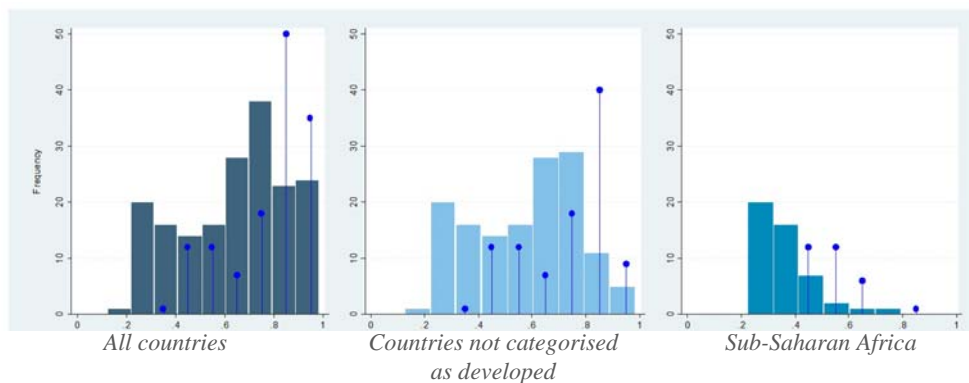[38] United Nations, "The Millennium", pp. 40-51
[39] The Life Expectancy Index is computed as (actual value – minimum value)/(maximum value – minimum value) where the goal post is 25 for the minimum value and 85 for the maximum value, respectively.

Life Expectancy Index 2010 (blue shaded histograms) published by the UN. It shows a similar picture as Figure 1. When accounting for differences between the sexes, the distribution of the index values shifts to the left and thus emphasizes the fact that there is no gender equality in health care.

THE EFFECTIVENESS OF THE MDGs

The MDG Report shows that improvements were reached in every sector addressed but the realization of all goals until 2015 is more than doubtful. This leads to the question whether the MDGs really made any difference or whether improvements were developing the same way as before 2000. If there was no significant change, this would mean that the MDGs were only a formal consensus on global goals but not really internalized by the UN's member states and that the UN did not successfully act as platform for developing and spreading 'global ideas and beliefs'.

Figure 2
Life Expectancy Index 2010

| All countries | Countries not categorised as developed | Sub-Saharan Africa |

Data Source: UNDP http://hdrstats.undp.org
Drop-lines: Life Expectancy Index 2010; Blue shaded bars: Inequality-adjusted Life Expectancy Index 2010

This section focuses solely on the health dimension of female human capital. It presents results of some initial investigations in examining the effectiveness of the MDGs on life expectancy. The major instrument used is the Chow test. The principle of the Chow test is to test whether coefficients of different groups are significantly different or not. As the MDGs were formulated and agreed upon in September 2000, the available data is separated into data up to 2000 and data from 2001 onwards.

Before looking at the question whether the development of life expectancy for women changed significantly after the MDGs were set, it was examined whether a general trend break can be observed when not controlling for the gender gap. For this, UN data for the period from 1970 to 2010 are used.[40] When looking at the development of life expectancy, one would not expect significant changes from 2001 onwards. A clear upward trend in life expectancy can be observed from 1970 to 2010 as well as tremendous cross-country differences of about 35 years throughout the entire period.[41]

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[40] UNDP, "2010 Report Hybrid"

[41] Rwanda is excluded from the sample as an extreme outlier: life expectancy dropped to only 26 years in the 1990s, which is partly explained by the 1994 genocide when some 800,000 Rwandans and hence about a tenth of the population were killed.
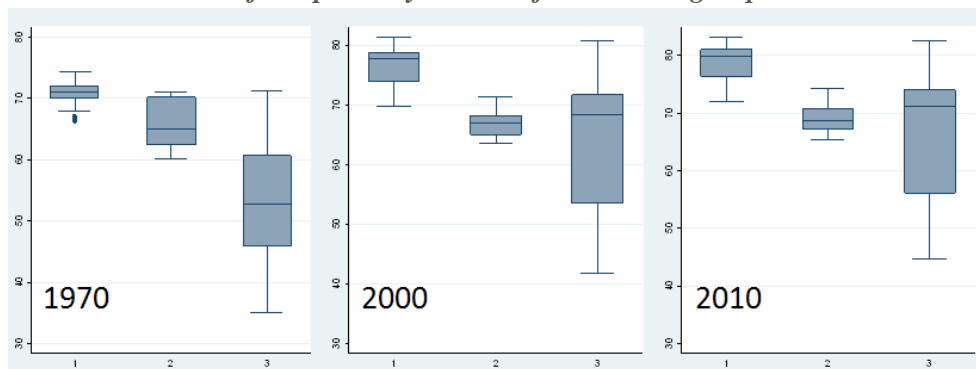
A Chow test, both on life expectancy at birth in years and on the growth rates of life expectancy did not show significant results. When the mean in life expectancy over years is plotted into a graph, it is observable that the life expectancy in cross-country mean improved from 1970 onwards with some stagnation after the period around 1989/1991 and again some more positive changes from around 2000 onwards. But again, a Chow test does not allow rejecting the hypothesis that developments until 2000 and from 2001 were the same.

However, when regressing over all countries worldwide, the developed countries, which already showed very high values for life expectancy in 1970, may substantially bias the effect of the MDG agreement which is clearly more directed to regions with low life expectancies. Figure 3 shows how the distribution of life expectancy at birth in years changed from 1970 to 2010 for three subgroups: developed countries (1), member countries of the Commonwealth of Independent States (2) and developing countries (3) categorized by the UN in 2011.

A comparison of the years 1970, 2000 and 2010 shows that the median substantially shifted upwards for all subgroups but the most for developing countries. In 1970, 50% of the life expectancy estimates were below 53 years for developing countries, whereas in 2010, 50% of the these estimates were below 71 years.

The procedure is repeated for the sample encompassing all developing countries and for the sub sample of sub-Saharan Africa excluding Rwanda. Henceforth, all results reported for sub-Saharan Africa exclude Rwanda from the sample. The results suggest that no significant changes in improvements can be seen when comparing the period from 1970- to 2000 with the period from 2001 to 2010. This result changes for both sub-samples when three instead of two periods are considered, namely 1970 to 1989, 1990 to 2000 and 2001 to 2010. The hypothesis that improvements in life expectancy did not change over time can be rejected on a 10% significance level for the sample of all developing countries and on a 1% significance level for sub-Saharan Africa[42].

Figure 3
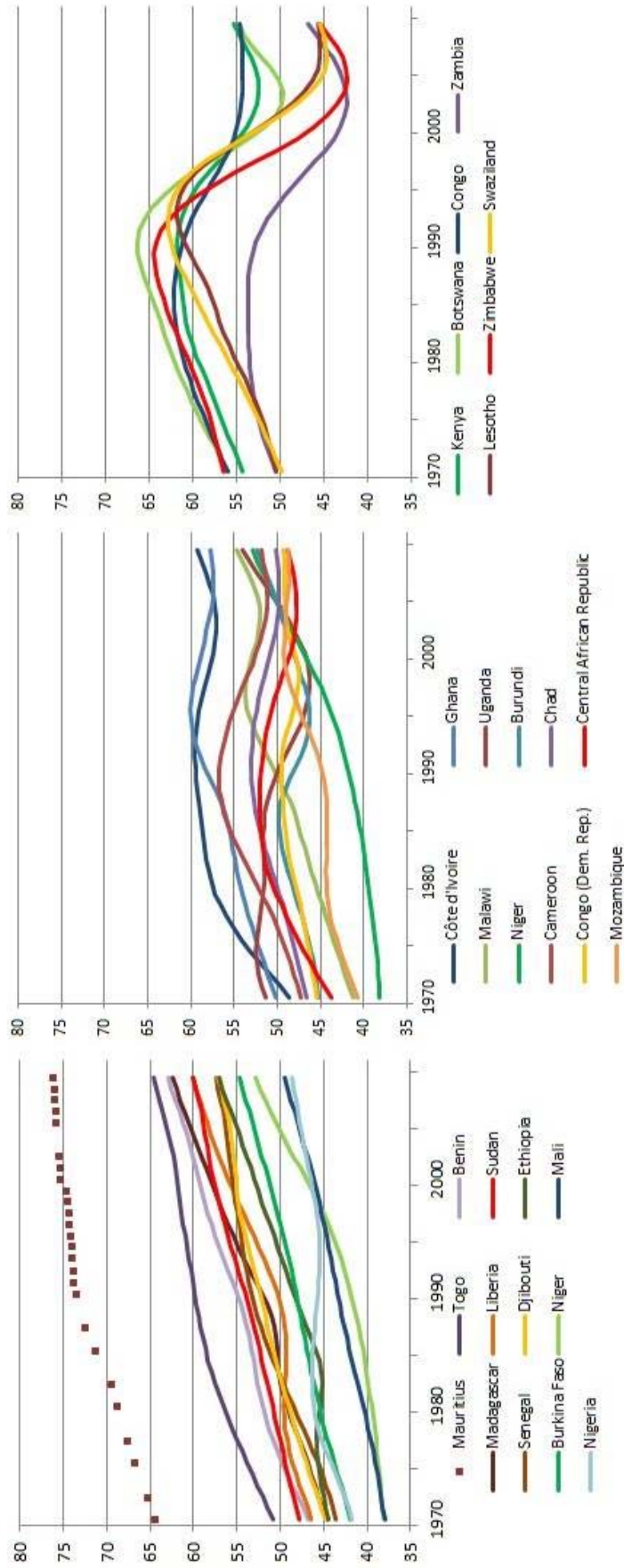*Life Expectancy in Years for three subgroups*

(1) Developed countries, (2) Member countries of the Commonwealth of Independent States,
(3) Developing countries as categorized by the UN in 2011 for statistical analysis only

As the effectiveness of the MDG is accessed, a comparison of the period 1990 to 2000 with the period 2001-2010 is made while accounting for all three periods. For the sample including all developing countries, the hypothesis cannot be rejected, thus the trend break around 1990 must have been more important overall. Focusing on sub-Saharan Africa allows us to assume that there have been significant changes from 2001 onwards as we can reject the hypothesis on a 5% significance level.

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[42] The result for sub-Saharan Africa also holds when Rwanda is included.

Figure 4
Development of Life Expectancy in sub-Saharan Africa

Group 1: close to linear

Group 2: rather positive

Group 3: highly volatile

Thirty countries enter the sub-Saharan Africa sample. Graphically, one could divide these countries with respect to the development of life expectancy in three sub-groups. One group showing positive developments in a close to linear manner (Figure 4 – Group 1), one group with some fluctuations between 1970 and 2010 but with an overall, rather positive trend (Figure 4 – Group 2) and one group consisting of eight countries in the south and east of Africa which experienced an extreme fall in life expectancy (Figure 4 – Group 3). The countries of the latter group correspond with those facing severe HIV epidemics. The MDG "Combat HIV/AIDS, malaria and other diseases" directly addresses this problem. According to the MDG Report, 72% of all HIV infections in 2008 were counted in sub-Saharan Africa. To really analyze the impact of the MDG, one would have to further examine which concrete actions were set to fight against HIV epidemics and which countries were addressed.

So far the Chow tests have been conducted on life expectancy measured in years. This section now uses a test on the change of growth rates as it would be expected that the improvement rates accelerated after the MDGs were agreed upon if the MDGs really led to changes. This analysis is exclusively done on sub-Saharan Africa, again excluding Rwanda.

When looking at growth rates in life expectancy, the Chow test allows rejecting the hypothesis of no change for both the comparisons of two periods (1970 to 2000 and 2001 to 2010) and three periods (1970 to 1989, 1990 to 2000, 2001 to 2010). Also, when three periods are considered, the Chow test is highly significant when looking at changes in growth rates differences in the periods from 1990 to 2000 and from 2001 to 2010.

Table 1
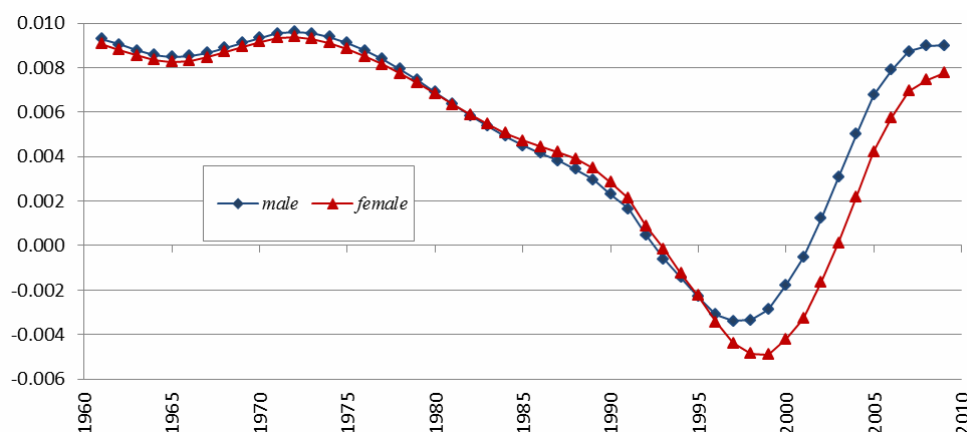*Chow test on 'Life Expectancy Growth Rates' for sub-Saharan Africa*

	Until 2000	After 2000		Chow Test	
Intercept	0.01209 (0.00058)	-0.03877 (0.00591)		$F(1,1196) = 107.3$ Prob > F = 0.000	$F(2,1196) = 131.6$ Prob > F = 0.000
Change/year	-0.00051 (0.00003)	0.00119 (0.00016)			
	1970-1989	1990-2000	2001-2010	Chow Test	
Intercept	0.01081 (0.00075)	0.01601 (0.00366)	-0.03877 (0.00589)	$F(2,1194) = 46.8$ Prob > F = 0.000	$F(4,1194) = 67.9$ Prob > F = 0.000
Change/year	-0.00037 (0.00006)	-0.00067 (0.00014)	0.00119 (0.00016)		
	Standard errors in parentheses			on change per year	on change per year and intercept

Overall one can draw some first conclusions. First, it is crucially important how to categorize regions when examining the effectiveness of the Millennium Development Goals. Looking at developing regions as a whole does not allow drawing any conclusions, the regional characteristics and the 'health challenges' they have to face are simply too diverse. Second, it seems that there has been a big change of living conditions around 1990, which is not further examined here. Third, it seems that there has been a trend break in expected living years and the growth rate of life expectancy when looking at sub-Saharan Africa around the year 2000.

The following tests examine whether there are differences in these outcomes when developments of life expectancy are divided by gender. Unfortunately, data on adolescent fertility rates and maternal mortality ratios before 2000 are rarely available so that this analysis again concentrates on the UN measure of 'life expectancy at birth' for both sexes.

Figure 5 shows the development of the life expectancy growth rates and Tables 2 and 3 report the results of the Chow test on this measure.

Figure 5
Life Expectancy Growth Rates for sub-Saharan Africa
from 1960 to 2009 by gender

The results of the Chow test are highly significant for men and women. Although life expectancy measured in years grew steadily from the 1960s to the 1990s, its growth rates declined. This means that growth rates were positive but diminishing, which is clearly a natural phenomenon when a certain threshold of life expectancy in years is reached. However, during the 1990s the Life Expectancy Growth Rates became negative, which means that life expectancy in absolute terms declined for both women and men. The period from 2001 to 2010 showed again positive and even increasing rates for life expectancy improvements.

Table 2
Chow test on 'Life Expectancy Growth Rates' for sub-Saharan African Women

	1970-1989	1990-2000	2001-2010	Chow Test on 1990-2000 against 2001-2010	
Intercept	0.01046 (0.00057)	0.02807 (0.00485)	-0.06469 (0.00834)	F(1, 592) = 51.3 Prob > F = 0.000	F(1, 592) = 45.2 Prob > F = 0.000
Change/year	-0.00019 (0.00003)	-0.00083 (0.00013)	0.00148 (0.00018)		
	Standard errors in parentheses			on change per year	on change per year and intercept

Table 3
Chow test on 'Life Expectancy Growth Rates' for sub-Saharan African Men

	1970-1989	1990-2000	2001-2010	Chow Test on 1990-2000 against 2001-2010	
Intercept	0.01090 (0.00055)	0.01737 (0.00468)	-0.05239 (0.00806)	F(1, 592) = 33.5 Prob > F = 0.000	F(1, 592) = 28.1 Prob > F = 0.000
Change/year	-0.00021 (0.00003)	-0.00052 (0.00013)	0.00126 (0.00018)		
	Standard errors in parentheses			on change per year	on change per year and intercept

CONCLUSION

In general, there are three viewpoints concerning the effects of economic globalization on female human capital. The proponents of economic globalization believe in the trickle-down effect of trade openness. Then there are the still optimistic ones arguing that economic globalization integrates women into the labor market and thus improves their independence and status. And of course there are some arguing that even if a country as a whole benefits from globalization, women as a disadvantaged group do not profit from it.

Two papers that take a broad view of economic globalization, including trade openness, cross-border capital flows and the involvement in international organizations, were presented. Their broad quantitative analyses support the view that trade openness and international capital flows are generally beneficial to women. Gray, Kittilson and Sandholtz pointed to the outstanding effect that the ratification of CEDAW seems to have on both female literacy rates and life expectancy of women. This led to the question whether global institutions such as the UN could act as a platform for creating 'global ideas and beliefs' which women could benefit from.

Some Chow tests on 'life expectancy at birth in years' – which is the UN measure for health conditions – suggest that the agreement on the Millennium Development Goals significantly led to changes for both, men and women in sub-Saharan Africa where life-expectancies are shown to be among the lowest in the world. However, these simple analyses do not look at the concrete actions taken by the UN members and thus do not allow attributing all positive developments solely to the MDGs. They simply show that the time of the change in life expectancy and the acceleration of growth rates fits with the time when the MDG were formulated and agreed upon, which is not a sufficient but a necessary condition for the effectiveness of the MDGs.

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