Does recession reduce global health aid? Evidence from 15 high-income countries, 1975–2007
David Stuckler, Sanjay Basu, Stephanie W Wang & Martin McKee

Objective To test the hypothesis that economic recessions lead to reduced global development assistance for health (DAH).

Methods Data obtained from the Creditor Reporting System of the Organisation for Economic Co-operation and Development (OECD) for 15 OECD countries were used to model the percentage change (relative difference) in commitments and disbursements for DAH as a function of three measures of economic recession: recessionary year (as a dummy variable with 0 for no recession and 1 for recession), percentage change in per capita gross domestic product and percentage point change in unemployment rate for recessionary cycles from 1975 through 2007. We looked for an association both during the concurrent recessionary year and one and two years later.

Findings No statistically significant association was found in the short or long run between measures of economic recession and the amount of official DAH committed or disbursed.

Conclusion Any important decrease in overall DAH following the current economic recession would have little historical precedent and claims of inevitability would be unjustifiable.

Introduction

There is fear that the ongoing global economic recession will lead high-income countries to reduce commitments or disbursements for development assistance for health (DAH). The World Bank’s chief economist for Africa, noting that the Group of Eight failed to meet its 2005 commitment to double aid to Africa, has expressed this fear as follows: “If during the boom period they were unable to meet these commitments, I’m wondering what is going to happen now that we’re in a deep recession.”

Yet so far the issue remains controversial. Although development assistance has been relatively protected from cuts since the start of the 2008 economic recession, many industrialized countries are now embarking on severe austerity measures. Some, such as the United Kingdom of Great Britain and Northern Ireland, have stated that they will protect overseas development assistance; others have been less explicit. Italy and Ireland have reduced their allocations for development assistance by 56% and 10%, respectively; while other countries, such as Germany and the United States of America (USA), increased their spending on development assistance when the current financial crisis arose. Australia’s AusAID has shown sustained commitment by creating a Global Economic Crisis Taskforce to support recipient countries facing additional economic problems resulting from the financial crisis. Despite a General Assembly resolution stating that the United Nation’s central emergency response fund should receive 500 million United States dollars (US$) annually to address disasters such as the earthquake in Haiti and the floods in Pakistan, only US$ 358 million were raised for the current year. China, despite being the world’s second-largest economy, pledged US$ 500 000; Italy promised US$ 1 500 000.

Non-state actors such as the Bill & Melinda Gates Foundation, the William J Clinton Foundation and the Carter Center also play an important role in determining financial flows to global health programmes. Endowments invested in equities may also be adversely impacted by recession. Grants (for all purposes) made by foundations based in the United States fell by 8.9% in 2009, creating concerns about delayed implementation or disbursement of funds as well as potential future reductions in funding. Uncertainty in future funding can greatly affect the capacity of global agencies such as the World Health Organization (WHO) to plan global health programmes effectively.

An overall reduction in commitments or disbursements could be particularly destabilizing for countries that use such aid to support ongoing health-care infrastructure development or to sustain existing health-care programmes. Among African nations, more than one-third of annual health spending may come from donor financing.

In this paper we examine what has happened during previous economic downturns and hypothesize that recessions lead to declines in official DAH. To test this hypothesis, we examined the records of 15 high-income European Union countries belonging to the Organisation for Economic Co-operation and Development (OECD) for the period between 1975 and 2007.

Methods

We investigated the relationship between economic downturns and the official DAH committed and provided by 15 OECD countries between 1975 and 2007 using data from the Creditor Reporting System. The countries included were Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland.

We identified economic downturns in three ways. As a first step we dated business cycles drawing on the methods specified...
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by Camacho et al. As a second step we
detected fluctuations in per capita gross
domestic product (GDP) expressed in
purchasing-power-parity dollars (i.e. the
economic growth rate in percentage
terms, which is effectively the same as
taking the difference in the natural log
of successive measures of GDP). As a
third step we attempted to measure not
just whether or not a recession existed
coded dichotomously, yes or no), but
also its depth and scale. To do so we used
continuous measures, such as the unem-
ployment rate, to correlate the severity of
the recession with the degree of reduction
in DAH. The importance of this step is
exemplified by the current recession in the
USA: if GDP alone is used as a measure of
a downturn (standard practice by the
National Bureau of Economic Research),
the USA appears to be out of recession,
since as we write its GDP is again rising.
However, this would fail to capture the
economic hardship confronting ordinary
people who are losing jobs, a factor that
is likely to influence political debates on
global aid commitments. Specifically, job
loss may put pressure on policy-makers to
decrease domestic social welfare expendi-
ture over international aid. Thus, our third
measure of the severity of the crisis was
captured by fluctuations in unemploy-
ment rates.

We modelled the percentage change
(relative difference) in commitments and
disbursements for DAH as a function of
each of the three economic variables
described in the previous paragraph (a
method of first-differences, although our
results were consistent when we modelled
using the current year’s levels of aid and
the absolute yearly differences rather than
yearly percentage changes). The rationale
for using a percentage difference equation
was twofold: first, we hypothesized that
a recession (a negative change in GDP)
would result in a reduction in DAH (a
negative change in DAH); second, our
statistical tests suggest that the data series
are weakly integrated (using Dickey-
Fuller tests), which indicates that there
is trending in the pre-2008 data. Had we
evaluated the level of aid instead, we
could have found spurious associations with the
state of the economy, as both the GDP
and DAH were rising relatively steadily for reasons that may be causally unrelated.
As a further robustness check we added a
trend variable to account for the longer-
term pattern of rising DAH in response to
the scaling up of targets for global aid,
which enabled us to better isolate the
association of a recession with changes in
aid. Finally, to mitigate the impact of
small numbers and zero values (for the 69
country–years in which no health aid was
committed), we constrained the sample
to more than a doubling in funding for
DAH, although we also found that this
constraint had no effect on the results.

Our basic model was thus:

\[ \Delta H_{it} = \alpha + \beta \text{REC}_{it} + \epsilon_{it} \]

where \( i \) is the country, \( t \) is the year, \( \Delta H \)
represents the percentage change in com-
mitments or disbursements for DAH (i.e.
rate of growth), REC includes a series of
measures of economic downturn (includ-
ing the economic growth rate and per-
centage point changes in unemployment
rate) and \( \epsilon \) is the error term. To reflect
the fact that countries were not independ-
ently sampled, we clustered standard errors
(SEs) for robustness to autocorrelation
(noting that autocorrelation affects the
SE but does not bias the coefficient esti-
mate \(^{11}\)). Data were analysed using STATA
v 10.1 (StataCorp LP, College Station,
USA). All data and statistical codes are
available from the authors upon request.

Results

Table 1 shows the results of our basic models. We found no statistically signifi-
cant association between commitments in
DAH on the one hand and a state of
recession, fluctuations in GDP per capita or changes in unemployment rates in
donor countries on the other. These
findings were unchanged after holding
fixed differences between countries
constant (correcting for time-invariant
differences in surveillance) and after
accounting for longitudinal trends in
DAH commitments (correcting for
patterns in DAH commitment changes that were already in motion before the
onset of recession; Table 1).

While countries may have remained
committed to DAH, they may have
disbursed less than they had committ-
ted themselves to give. Disbursements
recorded between 1995 and 2007, when
they were first reliably incorporated into the
OECD Creditor Reporting System
database, were approximately 4% lower
than commitments to DAH (on average,
US$ 122 per capita in commitments
versus US$ 117 per capita in disburse-
ments). Overall, health commitments and
health disbursements were strongly
correlated (\( r = 0.82; P < 0.0001 \); number
of country–years = 314). As shown in
Table 2, we found no association between
recessionary years, GDP downturns or
unemployment increases and disburse-
ments for health assistance; changes in
disbursements for DAH correlated with
changes in commitments to deliver DAH,
and disbursements for DAH were not
reduced during recessions.

It is, of course, possible that reces-
sions exert a delayed effect on health
spending. This may occur, for example,
when budgets including commitments
to deliver DAH have been set in advance
for the year in which the recession occurs.
Table 3 shows the results of statistical
tests examining the delayed effects of the
selected economic indicators on DAH.
Again, we found no statistically signifi-
cant association between any of the three
measures of economic downturn and
commitments in international assistance
for health when incorporating time lags.
Small negative coefficients marked the
relationship between real changes in GDP
and aid commitments using one- and
two-year lags; however, they were not statisti-
cally or jointly significant (\( F(2,14) = 0.15;\n\text{ } P = 0.86 \)).

On the other hand, fluctuations in
the previous year’s employment rate were
significantly associated with falls in DAH
commitments. For every percentage
point increase in unemployment over the
previous year there was a drop of 13.8%
in DAH. However, for every percentage
point increase in unemployment there
was a 5.7% increase in aid after a two-year
lag and an 8.5% increase in aid observ-
able in the concurrent year; cumulatively
(14.1%) this cancelled out the drop in aid
observed after a lag. Thus, there may be
some cyclical volatility in DAH associat-
ed with economic fluctuations, although
the overall change in the amount of DAH
is not statistically significant.

Discussion

Overall, we found no robust evidence to
support our hypothesis that recessions
lead high-income countries to reduce
their total DAH commitments or dis-
bursements, either immediately after
recession begins or within a two-year
period. Before interpreting these findings,
we must note several possible statistical
reasons for the lack of a significant associa-
tion between indicators of recession and
aid flows. Current data samples could lack
the statistical power needed to detect any
effect of recession if it is small. However,
Table 1. Measures of economic recession and their associations with the percentage change (relative difference) in commitments to deliver development assistance for health, before and after adjustment for country-specific time trends, 1975–2007

<table>
<thead>
<tr>
<th>Measure of recession</th>
<th>Unadjusted model</th>
<th>Adjusted model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-country variation (pooled OLS)</td>
<td>Full-country variation (fixed effects)</td>
</tr>
<tr>
<td>Dummy for recessionary year</td>
<td>11.17 (7.76)</td>
<td>11.17 (7.63)</td>
</tr>
<tr>
<td>Change in per capita GDP (%</td>
<td>0.45 (0.92)</td>
<td>0.45 (0.92)</td>
</tr>
<tr>
<td>Change in unemployment rate</td>
<td>11.71 (2.55)</td>
<td>11.71 (2.55)</td>
</tr>
<tr>
<td>Dummy for recessionary year</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change in per capita GDP (%</td>
<td>0.06 (0.91)</td>
<td>0.06 (0.91)</td>
</tr>
<tr>
<td>Change in unemployment rate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dummy for recessionary year</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change in per capita GDP (%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change in unemployment rate</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Robust standard errors are in parentheses throughout the table. They are clustered by country to reflect non-independent sampling. Countries include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom of Great Britain and Northern Ireland.

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Research

Our sample represented more than 200 country–years and is therefore highly likely to detect any effect other than a very small one. A high degree of measurement error is another possibility. All models yielded very low $R^2$ values, which suggests a lot of unexplained variation both within and between countries. Measurement error could also lead to attenuation bias, although the Creditor Reporting System has put considerable effort into standardizing reporting to improve comparability among countries. We have also evaluated within-country variations, which would not be impacted by between-country differences in surveillance methods. Such differences are where the greatest artefactual variation in measurement is likely to occur.

We have reported the average estimated association between recessions and DAH, and the average may conceal variation in how countries respond to financial downturns. For example, Sweden’s health disbursements were US$ 74 million per capita in 1990 and dropped slightly, to US$ 73 million, in 1991. However, they rose to US$ 99 million in 1992. On the other hand, Finland experienced a more substantial reduction of about one-third in GDP from 1991 to 1992 and reduced its aid commitments by a similar magnitude. Reduced commitments by some donors may be compensated for by other donor agencies, resulting in a null effect. Several non-state actors have increased aid commitments during the current recession. For example, Warren Buffett, a major donor to the Gates Foundation, saw his fortune increase by more than US$ 10 billion during 2010 and the overall resources available to the Gates Foundation (which depend on the stock market performance of its endowment investments) increased in 2010 after a short-term decline the previous year. Nonetheless, WHO staff report that some foundations have taken measures to offset the possibility of a future endowment decline, such as a delayed delivery of funds and other strategies that could unintentionally disrupt the effective planning of global health programmes.

The above notwithstanding, our findings suggest that high-income countries’ economic performance is not likely to be a significant determinant of DAH commitments or disbursements, as shown by past experience. Instead, they point to the importance of other global health debates and to political factors in determin-
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One contemporary risk is that donor agencies will behave in response to a political climate calling for generalized austerity that fosters the erroneous belief that a reduction in aid is the inevitable consequence of recession. Our evidence is consistent with a potential mimetic effect, whereby donors’ aid decisions are influenced by those of other donors. Thus, we may be facing a self-fulfilling prophecy. Future research should investigate the factors that may be driving health aid allocations and their potential influence on the reliability of development aid.

Competing interests: None declared.

Table 2. Measures of economic recession and their associations with the percentage change (relative difference) in disbursements for development assistance for health, 1975–2007

<table>
<thead>
<tr>
<th>Measure of recession</th>
<th>Full-country variation (pooled OLS)</th>
<th>Unadjusted modela</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>Dummy for recessionary yearb</td>
<td>6.66* (34.17)*</td>
<td>–</td>
</tr>
<tr>
<td>Change in per capita GDP (%)c</td>
<td>–</td>
<td>–0.19 (1.03)</td>
</tr>
<tr>
<td>Change in unemployment rate (%)d</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>No. of country–years</td>
<td>32</td>
<td>71</td>
</tr>
<tr>
<td>No. of countries</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>R² (goodness of fit for the entire model)</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

GDP, gross domestic product; OLS, ordinary least squares; pp, percentage points; none of the associations was statistically significant at P<0.05 in two-tailed t-tests.

a Data too few to observe any change after adjustment.

b Coded as 0 for no recession, 1 for recession. Recession dating based on reference9.

c Beta coefficient from the statistical model indicating the percentage change in development assistance for health. Same throughout upper portion of table.

d Robust standard errors are in parentheses throughout table. They are clustered by country to reflect non-independent sampling. Countries include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland.

e Data were missing for several countries.

Table 3. Measures of economic recession and their associations with the percentage change (relative difference) in commitments to deliver development assistance for health during recession and 1 or 2 years after recession, 1975–2007

<table>
<thead>
<tr>
<th>Measure of recession</th>
<th>Within-country variation (fixed effects model)</th>
<th>Unadjusted model</th>
<th>Adjusted model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>Dummy for recessionary yearb</td>
<td>14.4* (8.71)*</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Dummy for recessionary year</td>
<td>0.67 (8.53)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Dummy for recessionary year</td>
<td>4.96 (10.8)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Change in per capita GDP (%)c</td>
<td>–</td>
<td>0.89 (1.09)</td>
<td>–</td>
</tr>
<tr>
<td>Change in per capita GDP 1 year after recession (%)</td>
<td>–</td>
<td>–1.12 (0.89)</td>
<td>–</td>
</tr>
<tr>
<td>Change in per capita GDP 2 years after recession (%)</td>
<td>–</td>
<td>–1.80 (1.30)</td>
<td>–</td>
</tr>
<tr>
<td>Change in unemployment rate (%)d</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Change in unemployment rate 1 year after recession (pp)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Change in unemployment rate 2 years after recession (pp)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>No. of country–years</td>
<td>195</td>
<td>238</td>
<td>244</td>
</tr>
<tr>
<td>No. of countries</td>
<td>14</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>R² (goodness of fit for the entire model)</td>
<td>0.02</td>
<td>0.02</td>
<td>0.04</td>
</tr>
</tbody>
</table>

GDP, gross domestic product; pp, percentage points; *P<0.05; **P<0.01; two-tailed t-tests.

a Coded as 0 for no recession, 1 for recession. Recession dating based on reference9.

b Beta coefficient from the statistical model indicating the percentage change in development assistance for health. Same throughout upper portion of table.

c Robust standard errors are in parentheses throughout table. They are clustered by country to reflect non-independent sampling. Countries include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland.

d Data were missing for one country.
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2007–1975 in 15 high-income countries, we examine whether economic recessions reduce official global health development assistance (GDA).

The study uses data from the World Bank’s World Development Indicators and the Organisation for Economic Co-operation and Development (OECD)’s Development Co-operation Report.

We find no evidence that economic recessions reduce GDA in high-income countries.

Conclusions

Our findings suggest that economic recessions do not lead to reduced GDA in high-income countries.

These results have important implications for future analyses of the impact of economic recessions on global health aid.
¿La recesión disminuye la ayuda sanitaria mundial? Datos procedentes de 15 países de ingresos elevados, durante el periodo comprendido entre 1975 y 2007

Objetivo
Comprobar la hipótesis de que las recesiones económicas conllevan una disminución de la ayuda mundial para el desarrollo destinada a la salud (ADS).

Métodos
Se emplearon los datos obtenidos a través del Sistema de Información Creditor de la Organización de Cooperación y Desarrollo Económicos (OCDE), procedentes de 15 países miembros de la OCDE, para determinar la variación porcentual (diferencia relativa) de los compromisos y desembolsos para la ADS, como una función de las tres medidas de la recesión económica: el año de la recesión (como una variable simulada en la que el 0 corresponde a la ausencia de recesión y el 1 a la recesión), la variación porcentual del producto interior bruto per capita y la variación en puntos porcentuales de la tasa de desempleo en los ciclos de recesión entre 1975 y 2007. Hemos buscado una asociación durante el año de recesión concurrente y durante uno y dos años después.

Resultados
No se observó ninguna asociación estadísticamente significativa a corto o largo plazo entre las medidas de la recesión económica y el volumen de ADS oficial comprometida o desembolsada.

Conclusión
Cualquier descenso considerable en la ADS mundial tras la actual recesión económica tendría escasos precedentes históricos, por lo que resultaría injustificable afirmar su inevitabilidad.

Referencias