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Abstract
Several studies emphasize the importance of the general environment in recipient countries for effectiveness of development aid. Another more recent strand of the literature considers whether the receipt of aid affects the happiness of developing countries. Since corruption, an indicator of the general environment, coexists with aid we consider an empirical model where both are arguments of a happiness production function. We present evidence on the relationship between happiness and aid given different levels of corruption. We find that accounting for corruption, aid has a negative marginal effect on happiness – but only in countries where corruption is most rampant.

Keywords – Happiness, Corruption, Foreign aid flows, Developing countries

JEL classifications – D73, I31 F35, O11

1. Introduction

The new science of happiness draws from a number of disciplines to analyze life satisfaction (or subjective well-being) of individuals and societies. By contrast, in the past happiness was simply equated to income or purchasing power. Recent studies show that health status, marriage, inflation, social connections, friendship, beauty, and many other factors play a role in individual or societal happiness (see Layard, 2006, Frey, 2008, and Stutzer and Frey, 2010 for a survey).

One strand of this literature (Arvin and Lew, 2009, 2010, 2011) examines the nexus between foreign aid and happiness. The general conclusion from these studies is that development aid brings happiness for a few donors, but not for recipient countries. A possible drawback of these studies is that corruption in recipient countries, which is commonly acknowledged to be a factor in the general efficacy of aid, is not considered. Remarkably, even in other strands of the literature on happiness where the focus is not on development assistance, researchers do not include corruption as a possible explanatory variable, even though intuition suggests that the level of corruption should have an impact on the happiness of nations.

The purpose of this paper is to introduce corruption side-by-side with aid as an argument of the happiness production function. We then study the link between happiness and aid, controlling for corruption and a number of other variables that may influence happiness. In particular, we examine the marginal effect of aid on happiness given different levels of corruption.

The balance of this paper is structured as follows. The next section sets out a literature survey and provides motivation for this paper. It suggests, firstly, that research

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exploring the relationship between happiness and foreign aid and between happiness and corruption is scarce, and secondly, that no work has examined the joint influence of development assistance and corruption on happiness. The subsequent section describes the data and methods used to assess the correlation between happiness and foreign aid-cum-corruption. The findings and their implications are then discussed. Finally, conclusions are drawn.

2. Literature Survey

Foreign aid has been the focus of considerable attention in recent decades, with an ongoing debate about its effectiveness. Economists such as Easterly (2006) have levelled stinging critiques, arguing that aid has enlarged government bureaucracies, perpetuated bad governments, or generally been wasted in one form or another. On the other side, proponents of aid such as Sachs (2005) have argued that aid has promoted economic growth and poverty reduction in some countries and that any shortcomings stem from poor allocation by donors. Burnside and Dollar (2000, 2004) find that aid has a positive impact on growth in poorer countries only when ‘good policies’ or ‘quality institutions’ are in place. In a similar vein, Chauvet and Guillauumont (2004) argue that aid’s success in promoting growth depends on the political stability of the recipient country, while others point to the importance of factors such as the level of democratization (Svensson, 1999), the proportion of the country’s area that lies in the tropics (Daalgard et al., 2004), or structural vulnerability (Guillaumont and Chauvet, 2001).

In light of the expansive literature debating the usefulness of aid for income growth or poverty reduction and the emphasis on the role of good governance or environment in poor countries for positive outcomes, it is a curious fact that there are no empirical studies asking whether development aid and corruption in tandem affect the level of happiness in developing countries. This is surprising since corruption is a key factor in defining the quality of governance or more generally the environment in these countries, which encompasses other attributes such as soundness of policies, quality of institutions, etc.\(^1\) The few existing studies which consider the link between aid and happiness do not consider corruption. Arvin and Lew (2009) present general evidence that foreign aid is linked to happiness but that it is better to give than to receive aid. Their further study (Arvin and Lew, 2010), which examines the relationship between aid and happiness for some individual European donors separately, reveals that aid leads to donor happiness only for France. In a departure from considering donor happiness, Arvin and Lew (2011) test the hypothesis that foreign assistance ultimately increases recipient country happiness. Interacting aid with remittances they find that at lower levels of remittances aid has a reductive effect on happiness; and that higher remittances play a useful role in mitigating the reductive effects of aid.

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\(^1\) Corruption has no geographical boundaries and exists everywhere. Abed and Gupta (2002) demonstrate that corruption is not restricted to specific regions or levels of economic development – although it is more common in poorer countries. Jain (2001) provides a good survey of the corruption literature. Estimates of losses from corruption from various studies are reported in Rose-Ackerman (1997).
To our knowledge, the only existing study which links happiness with corruption is a study by Graham and Chattopadhyay – as reported in Graham (2011). Defining corruption as “corruption victimization” and utilizing several years (1998–2008) of pooled Latinobarometro data, Graham reports that corruption victimization bears a negative relationship with happiness. Interestingly, at the same time, a second variable, corruption norm, is positively correlated with happiness signifying that, “as in the case of crime, being a victim of corruption is mitigated in contexts where corruption is more common, and there are both less stigma effects and individuals have adapted or become accustomed to it” (Graham, 2011, pp. 122-23).

There are important ways in which the present study differs from Graham (2011). First, unlike Graham, we introduce foreign aid as a key explanatory variable, concentrate on its interaction with corruption, and their joint influence on happiness. Second, we cover all countries from around the globe – not just those in Latin America. These countries include both poorer and relatively richer countries. Third, we consider a different span of time. Finally, and most significantly, our definition of corruption is different and more general than that of Graham.

To summarize, with the exception of Arvin and Lew (2009, 2010, 2011) empirical studies of happiness do not include development aid as an important correlate even though studying life satisfaction is important for countries that receive aid. Furthermore, with the exception of the study by Graham and Chattopadhyay reported in Graham (2011) empirical models of happiness have not considered corruption as an important argument in the happiness production function. The present paper, unlike earlier work, is the first study which concentrates on the nexus between aid-cum-corruption and happiness.

3. Empirical Approach and Data

Since the existence of corruption is undisputable and since, according to the literature reviewed earlier, the interaction between foreign assistance and corruption appears plausible, we provide an empirical model where aid and corruption together with a number of other covariates relate to happiness in counties across the globe. We are particularly interested in estimating the effect of aid on happiness as corruption levels change. We posit the following regression model:

$$ H_{it} = \alpha_0 + \alpha_1 A_{it} + \alpha_2 C_{it} + \alpha_3 (A_{it} \times C_{it}) + \alpha_4 P_{it} + \alpha_5 P_{it}^2 + \alpha_6 L_{it} + \alpha_r RD_{it} + \alpha_y YD_{it} + \epsilon_{it} $$  (1)

2 Latinobarometro is a regionwide opinion survey for Latin America. The surveys provide among other things information on corruption victimization (self-reported) across and within countries and over time in aggregate levels. The corruption victimization question used by Graham’s research team is: “were you or someone in your family a victim of corruption last year?”

3 Studying life satisfaction or subjective wellbeing is also important in the context of developed economies. A related concept here of course is social wellbeing. For example, Guisan (2009) looks at several European countries as well as Canada and the U.S. revealing interesting relationships between human capital, government quality, economic development and social wellbeing.
Thus, our empirical model explains happiness \((H)\) in country \(i\) and year \(t\) in terms of foreign aid \((A)\), level of corruption \((C)\), as well as their interaction. The regression also includes income levels \((P)\) in a non-linear fashion, life expectancy \((L)\), as well as region dummy \((RD)\) and year dummy \((YD)\) variables as covariates.\(^4\) Year dummy variables are included to capture macro effects common across the sample. Clearly, on intuitive grounds, all the independent variables in our regression are expected to explain variations in happiness. The random error term is represented by \(\varepsilon\).

Our sample covers 118 countries over the years 1996-2009. Data on development aid, income, and life expectancy are from the World Bank’s World Development Indicators (World Bank, 2012a). Income is the natural logarithm of real per capita GDP.\(^5\) Development aid is defined either as real per capita aid or real aid as a share of a recipient country’s real GDP (see the next section).\(^6\) Data on corruption are from the World Bank’s World Governance Indicators – WGI (World Bank, 2012b).\(^7\) Corruption is coded on a scale from -2.5 to 2.5 with higher values indicating lower corruption levels. All WGI measures are for the years 1996, 1998, 2000, and 2002-2010. Since the measures change only slowly from year to year, we linearly interpolate values for the missing years in our sample: 1997, 1999, and 2001.\(^8\)

For the dependent variable, happiness, we use the measure "life satisfaction" from the World Database of Happiness (Veenhoven, 2012). This measure is gathered from individual country surveys, and the measure used is the mean per country per year. For some countries, there may be more than one survey measure reported per year.\(^9\) In that case, the mean of these is used. All survey results are converted to an 11-point scale, so the measure of happiness has a range from 0 to 10. Since we use the means of survey measures, the scale for our happiness measure is ordinal, even though the surveys themselves are cardinal. Table 1 provides summary statistics on these variables.

The next section presents our empirical findings. Our model is run as a pooled regression. Estimates are OLS with heteroskedastic-robust standard errors adjusted for clustering by country.

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\(^4\) We use World Bank categorizations for our regional dummy variables.

\(^5\) It makes sense to transform real per capita GDP into log form in order to reduce a possible heteroskedasticity problem. Of course, it does not make sense to take log transformation of an index such as happiness.

\(^6\) Real per capita aid and real aid as a share of GDP are not log transformed since data includes negative values reflecting possible re-payments of debt. Thus, net aid figures reported in World Development Indicators is negative for a few countries.

\(^7\) World Bank’s definition is: “control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state by elites and private interests.”

\(^8\) The online documentation from the World Governance Indicators indicates that the data are not useful for short-run, year-to-year, comparisons. Hence, our linear interpolation does not distort the underlying trends.

\(^9\) Thus, individual country surveys may include Gallup and other well-known surveys.
Table 1: Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happiness</td>
<td>5.893</td>
<td>1.154</td>
<td>2.450</td>
<td>8.240</td>
</tr>
<tr>
<td>real Aid per capita</td>
<td>0.0489</td>
<td>0.0720</td>
<td>−0.0365</td>
<td>0.8907</td>
</tr>
<tr>
<td>Aid/GDP</td>
<td>0.0565</td>
<td>0.1444</td>
<td>−0.00701</td>
<td>2.22682</td>
</tr>
<tr>
<td>Control of Corruption</td>
<td>−0.284</td>
<td>0.677</td>
<td>−1.571</td>
<td>2.391</td>
</tr>
<tr>
<td>In real GDP per capita</td>
<td>7.627</td>
<td>1.044</td>
<td>4.600</td>
<td>10.207</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>69.624</td>
<td>7.158</td>
<td>43.768</td>
<td>81.329</td>
</tr>
</tbody>
</table>

4. Results

Two specifications of our empirical model are utilized. In the first, we define foreign aid as real per capita aid. In the second, aid is defined as real aid as a share of a recipient country’s real GDP. Under both specifications, we first run our regression without the use of regional dummy variables. Results are presented in the first and third columns of Table 2. We then run our regression with regional dummy variables, the results of which are shown in the second and fourth columns of Table 2.\(^{10}\)

We begin discussion of our results starting with those pertaining to the control variables. The coefficient on the income variable \((P)\) has the ‘correct’ sign in the first column suggesting that income and happiness are positively correlated, but the sign changes in the subsequent columns. While this coefficient – as well as the coefficient on the income-squared variable – are both individually statistically insignificant, they are jointly significant at the 5% level, under both specifications whether or not regional dummy variables are used.\(^{11}\)

This suggests that variations in happiness are explained by income. The coefficient on life expectancy is uniformly positive in all cases considered, indicating that happiness is positively correlated with life expectancy. However, the level of statistical significance of this coefficient varies between the cases considered: it is highly significant in the first and third columns; but not significant elsewhere. It is clear that the inclusion of regional dummy variables removes the statistical significance of the coefficient on life expectancy. This appears intuitive given the notable difference in life expectancy across different regions.

\(^{10}\) Although we do not report the year dummy variable coefficients in the table of results, the full results are available from the authors upon request.

\(^{11}\) This is ascertained through a joint F-test on the two parameters, which together yields significance at the 5% level.
<table>
<thead>
<tr>
<th></th>
<th>(I) Aid per Capita</th>
<th>(II) Aid per Capita</th>
<th>(III) Aid Share GDP</th>
<th>(IV) Aid Share GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corruption</td>
<td>-0.0883</td>
<td>-0.0422</td>
<td>-0.1673</td>
<td>-0.0385</td>
</tr>
<tr>
<td></td>
<td>[0.1777]</td>
<td>[0.1384]</td>
<td>[0.1836]</td>
<td>[0.1403]</td>
</tr>
<tr>
<td>Aid</td>
<td>-2.2257</td>
<td>0.0712</td>
<td>-0.0134</td>
<td>0.6470</td>
</tr>
<tr>
<td></td>
<td>[1.4656]</td>
<td>[1.0272]</td>
<td>[0.8313]</td>
<td>[0.5567]</td>
</tr>
<tr>
<td>Corruption × Aid</td>
<td>-0.5202</td>
<td>1.2117*</td>
<td>0.8785</td>
<td>1.4602**</td>
</tr>
<tr>
<td></td>
<td>[0.8720]</td>
<td>[0.7162]</td>
<td>[0.6963]</td>
<td>[0.5685]</td>
</tr>
<tr>
<td>ln real per capita GDP</td>
<td>0.1622</td>
<td>-0.1992</td>
<td>-0.3899</td>
<td>-0.5835</td>
</tr>
<tr>
<td></td>
<td>[0.7551]</td>
<td>[0.7680]</td>
<td>[0.7751]</td>
<td>[0.7656]</td>
</tr>
<tr>
<td>ln real per capita GDP²</td>
<td>0.0126</td>
<td>0.0348</td>
<td>0.0502</td>
<td>0.0602</td>
</tr>
<tr>
<td></td>
<td>[0.0519]</td>
<td>[0.0515]</td>
<td>[0.0527]</td>
<td>[0.0513]</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>0.0466***</td>
<td>0.0134</td>
<td>0.0468***</td>
<td>0.0120</td>
</tr>
<tr>
<td></td>
<td>[0.0142]</td>
<td>[0.0188]</td>
<td>[0.0151]</td>
<td>[0.0185]</td>
</tr>
<tr>
<td>Eastern Europe &amp; Central Asia</td>
<td>-1.2329***</td>
<td></td>
<td>-1.1777***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.1855]</td>
<td></td>
<td>[0.1615]</td>
<td></td>
</tr>
<tr>
<td>Latin American &amp; Caribbean</td>
<td>0.2831</td>
<td></td>
<td>0.3422**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.1857]</td>
<td></td>
<td>[0.1626]</td>
<td></td>
</tr>
<tr>
<td>Middle East &amp; North Africa</td>
<td>-0.4518***</td>
<td></td>
<td>-0.3751**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.1632]</td>
<td></td>
<td>[0.1572]</td>
<td></td>
</tr>
<tr>
<td>South Asia</td>
<td>0.0819</td>
<td></td>
<td>0.0459</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.5087]</td>
<td></td>
<td>[0.4957]</td>
<td></td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>-1.1842***</td>
<td></td>
<td>-1.1773***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.4067]</td>
<td></td>
<td>[0.3992]</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>-0.8516***</td>
<td></td>
<td>-0.7455***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.2529]</td>
<td></td>
<td>[0.2407]</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.3099</td>
<td>4.9222</td>
<td>2.2215</td>
<td>6.0294*</td>
</tr>
<tr>
<td></td>
<td>[2.5403]</td>
<td>[3.1136]</td>
<td>[2.8009]</td>
<td>[3.1730]</td>
</tr>
<tr>
<td>N</td>
<td>452</td>
<td>452</td>
<td>452</td>
<td>452</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.35</td>
<td>0.61</td>
<td>0.35</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Notes: (1) Standard errors are in brackets. (2) * p < 0.10, ** p < 0.05, *** p < 0.01. (3) Dependent variable is happiness. (4) In regressions (II) and (IV), the base region is East Asia & Pacific. North America is not included since neither Canada nor United States receive aid. (5) Regressions (I) and (II) define Aid as real aid per capita; regressions (III) and (IV) define Aid as real aid as a share of real GDP of a recipient country.
Turning to the findings with respect to our key explanatory variables of interest, aid and corruption, we encounter interesting results. In order to explore these fully, we partially differentiate equation (1) with respect to foreign aid. This yields

\[
\frac{\partial H_{it}}{\partial A_{it}} = \alpha_1 + \alpha_3 C_{it}
\]  

(2)

Under our first specification, equation (2) gives the marginal effect of real per capita aid on happiness, which varies according to the level of corruption. Analogously, under the second specification, the same equation gives the marginal effect of aid share of GDP on happiness – which again is a function of the level of corruption.

As is clear from Table 2, our preferred specification is where regional dummies are included in equation (1). Under this case, not only are our adjusted $R^2$ values higher, but our coefficients are more robust. In particular, whether aid is defined on a per capita basis or as a share of GDP, the coefficient on the interaction term (i.e., $\alpha_3$) is positive and statistically significant.

Results from Table 2’s second and fourth columns, when taken in conjunction with equation (2) suggest that aid would have a positive effect on happiness if there were no corruption. However, this is substantively meaningless since corruption always exists. The positive coefficient on the interaction term ($\alpha_3$) suggests that the marginal effect of aid on happiness increases as corruption increases. These types of results always need careful interpretation in a multiplicative interaction model such as the one that is employed in this paper. In particular, it is important to go beyond the traditional table of results, such as our Table 2, in order to convey the marginal influence of one variable on another. Here we use two graphs to succinctly illustrate the marginal effect of aid on happiness across the range of values for corruption.

Figure 1 illustrates the marginal effect of real per capita aid on happiness. The solid-sloping line is drawn using equation (2) – with the estimated values for $\alpha_1$ and $\alpha_3$ from Table 2’s second column. The broken lines around the solid line are 95% confidence intervals. As is evident, the upper confidence interval crosses the horizontal axis at approximately “-1.0”. Since 10% of our sample’s observations pertain to corruption levels less than -1.0, therefore the marginal effect of real per capita aid on happiness is negative for 10% of our observations. In the same vein, Figure 2 shows the marginal effect of aid share of GDP on happiness. The estimated values for $\alpha_1$ and $\alpha_3$ from Table 2’s last column. Clearly, the upper confidence interval crosses the x-axis at about “-0.85”. Here the marginal effect of aid share of GDP on happiness is negative for 20% of our sample, those with the highest levels of corruption.
Figure 1: Marginal Effect of AID per capita on Happiness Controlling for Corruption, with Year and Region Indicators

Figure 2: Marginal Effect of AID (as a share of GDP) on Happiness Controlling for Corruption, with Year and Region Indicators
These results may be explained as follows. Real aid per capita captures donor interest\(^\text{12}\) and/or recipient need; on the other hand, real aid share of GDP indicates the level of aid dependency (or recipient need) of a country. Our results show that regardless of whether aid disbursed is out of donor interest or based on recipient need, for the majority of countries around the globe (those with lower levels of corruption) aid has a statistically insignificant impact on happiness.\(^\text{13}\) However, in countries experiencing very high levels of corruption, an increase in aid is detrimental to happiness. Misery is compounded when citizens perceive aid funds are plundered, diverted, or wasted.

5. Conclusions

This study was partly motivated by the hypothesis that happiness in countries requires, above all, probity (i.e., the opposite of corruption). Of course, happiness may be thought to also be influenced by a host of other factors, among them foreign aid disbursed to developing countries. Furthermore, aid and corruption are not separable and ought to coexist in a model where one seeks to explain variations in happiness. Thus, this study concentrates on the relationship between happiness and aid, given different levels of corruption, using two common definitions of development aid.

Two important conclusions follow: First, in examining the link between aid, corruption, and happiness, future studies should be cognisant of the importance of regional influences. As we witnessed, the exclusion of regional dummy variables yields biased and misleading results. Second, accounting for corruption, we observe that aid has a statistically insignificant marginal impact on the level of happiness of the citizens of most countries — although aid has a negative marginal effect on happiness in countries where corruption is most rampant.

Finally, this study focussed on corruption. However, corruption is only one element in defining or determining the quality of governance or the general environment. Future studies should explore a wider notion of good governance or the environment — which includes quality of policies and performance of public institutions — in order to explore the relation between aid and happiness in poorer countries.

References

\(^\text{12}\) The notion of donor interest comes to mind since aid may be driven by commercial or strategic imperatives. Conjointly, this variable may also be taken as a measure of donor generosity.

\(^\text{13}\) This result is congruent with the results of Arvin and Lew (2009, 2011) although, as mentioned earlier, these studies do not incorporate corruption as an argument of the happiness production function of the poorer countries.


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