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Aid, Policy, and Growth: The Case of Nepal

Kishor Sharma and Badri Bhattarai

Abstract: The debate over aid effectiveness has produced a large number of cross-sectional studies, while case studies of individual countries remain extremely limited, probably due to the lack of disaggregated data. This paper contributes to aid-, policy-, and growth literature using data from Nepal, a country that has been one of the highest recipients of aid in the developing world. Our findings suggest that aid, in the presence of sound economic policy, contributes to growth. However, we did not find any statistical evidence to suggest that democratic governance and openness impact the effectiveness of aid in Nepal.

Keywords: corruption, foreign aid, governance, institutions, Nepal, poverty

JEL Classification Codes: F35, O23, O38

The relationship between foreign aid and economic growth remains controversial despite the over half-a-century of history, and the debate as to the effectiveness of aid in developing countries continues. Recently, Craig Burnside and David Dollar (2000) and Paul Collier and David Dollar (2001) have demonstrated, using cross-sectional data, that aid enhances growth in countries with good policies and institutions, and that linking aid to policy reforms should help accelerate growth and alleviate poverty. While these authors' findings appear to be convincing, the empirical base and methodologies they applied in their studies have been questioned (see, for example, Dalgaard, Hansen and Tarp 2004; Easterly, Levine and Roodman 2003; Hansen and Tarp 2000, 2001). Critics point out a number of methodological shortcomings when they re-estimate Burnside and Dollar and Collier and Dollar's models of aid effectiveness using the same data set.[1] One apparent problem with the aid-growth

Kishor Sharma is a professor of economics in the School of Accounting and Finance at Charles Sturt University, Wagga Wagga (Australia). Badri Bhattarai is a lecturer of economic at La Trobe University, Sydney Campus (Australia). *The authors are grateful to two anonymous referees and Christopher Brown for insightful comments that have significantly improved the quality of this paper. All remaining errors are the authors' own.*

[1] For instance, when Dalgaard, Hansen and Trap (2004) re-estimated Burnside and Dollar's model, using the latter's data set, they found that the results of Burnside and Dollar were data-dependent. When five observations were excluded from the samples, the results changed because these observations had influenced the coefficient of the aid-policy interaction term. Dalgaard, Hansen and Trap (2004) also demonstrated that, when some other combinations of observations were deleted, aid still stimulated growth regardless of the policy environment.

literature is that empirical studies are largely based on cross-country data that simply presents an "average" picture. Naturally, they do not capture the country-specific differences since developing countries vary significantly not only in size and economic structure, but also in the quality of governance and institutions. Depending on the sample size, the countries covered, and the variables used, sometimes aid is growth-enhancing, but not always[2]. The cross-country studies also fail to capture either the donor's motives or the recipients' capacities (including institutional capacity) and interests in receiving aid, which can have significant impact on its effectiveness (Sharma 2011). There is certainly a need for systematic country case studies that pay due attention to each country's institutional framework and policy history.

The purpose of this article is to bridge this gap in the literature by undertaking a case study of the role of foreign aid in economic development in Nepal. Nepal has been one of the highest recipients of aid in the developing world. Surrounded by India to the east, west and south, and by China to the north, Nepal's strategic position has attracted unusually high attention from the donor community, and especially so during the cold war period, despite its poor institutional capacity. Between the 1950s and 1970s, foreign aid financed about 95 percent of the government expenditures, although aid inflow to Nepal and the nature of projects funded by bilateral donors varied with the intensity of cold war.[3] Despite the unusually high aid inflows, Nepal remains one of the poorest countries in the world with average per capita income of US$540 in 2011 (World Bank 2013). Naturally, this raises a number of questions as to why aid has failed to accelerate growth and to reduce poverty and inequality in the country. In this paper we shed light on this issue through a systematic investigation of the link between aid, policy, and growth using time series data from 1965–2008.

Following this brief introduction, section two presents an analytical framework for the study. Section three documents trends and patterns of foreign aid, as well as governance and institutions in Nepal. Section four specifies a model and discusses data and econometric procedures. Section five provides the empirical results. The paper concludes with some policy remarks.

Analytical Context

In the immediate post-war era, economists developed growth models to demonstrate how foreign aid can accelerate growth in developing countries[4]. Since the ability of developing countries to attract foreign private capital had been limited, it was argued that foreign aid was the only means of rescuing these economies from poverty and underdevelopment, additionally providing resources to fill the gaps in savings,

[2] Empirical studies are also sensitive to how aid is measured. For instance, when humanitarian and technical aid are excluded (which influence growth only in the medium term), foreign aid tends to have a positive impact on growth (Clemens et al. 2004).

[3] In recent years, foreign aid finances about sixty percent of development expenditure.

[4] This group includes Sir Ray Harrod, Evsey Domar, Hollis Chenery, Sir Arthur Lewis, Gunnar Myrdal, and Walt Rostow.

investment, and foreign exchange (Sharma 2011). Within this framework, some of the early studies found that foreign aid adversely affects domestic savings and growth. For example, K.B. Griffin (1970), and K.B. Griffin and J.L. Enos (1970) did not find any evidence of a positive link between aid, savings, and economic growth in developing countries. They argued that aid was a substitute for savings and a large part of the foreign capital was used to increase consumption rather than investment, which is crucial for growth. In line with these studies, Peter Boone (1996) also found that aid did not contribute to economic growth in developing countries. In a study of three South Asian countries — Indonesia, Thailand, and Philippines — for the period between 1970 and 2000, J.P. Burke and F.Z. Ahmadi-Esfahani (2006) established similar results (Bhattarai 2013). They concluded that rapid economic growth in these economies was mainly brought about by foreign investment, while export growth was not caused by foreign aid.

Critics, however, have pointed out a number of methodological shortcomings of earlier studies (see, for example, Hansen and Tarp 2000, and literature cited therein). Gustav F. Papanek (1972, 1973), Henrik Hansen and Finn Tarp (2000), and Jeffrey D. Sachs (2005) convincingly showed that aid enhances investment and economic growth in developing countries. Stephen Knack (2001), on the other hand, argued that, by providing training and technical assistance, foreign aid helps develop institutional capabilities that, in turn, give an important boost to the effectiveness of governance. P.T. Bauer (1976), however, maintained that aid inflows to poor countries can perpetuate corrupt behavior and create moral hazard, significantly undermining their institutional infrastructure instead of building it. While bureaucrats and ruling elites may view aid resources as a means of generating revenue and a source of employment for their supporters and family members, foreign aid inflows can distort incentives for savings and investments and delay much needed institutional reforms in developing countries — the *sine qua non* for private sector-led growth. Michael Maren (1997) argued that excessive aid inflows can lead to political instability and corrupt government, while Stephen Knack (2001) and Kishor Sharma (2006) demonstrated that easy access to aid reinforces the ruling elites' position and diminishes the quality of governance and institutions.

There is now a growing consensus that weak governance and institutions retard growth (see for example, Friedman et al. 1999; Kaufmann et al. 2008 and 2010), while good policies and institutions enhance growth by making aid effective (Burnside and Dollar 2000; World Bank 2000).[5] As Dani Rodrik, Arvind Subramanian and Francesco Trebbi (2002) argue, institutional quality can directly affect growth by reducing information asymmetries, lowering risks (as institutions define and enforce property rights), and imposing greater restrictions on the actions of politicians and interest groups (make them accountable to citizens). Often, donor-driven aid agendas fail to promote good institutions that are crucial for economic growth in developing

[5] Key features of good policies include low inflation and real exchange rates, sustainable fiscal policy, and open trade and payment regimes, while good institutions refer to the existence of the rule of law, effectiveness of government, and a good regulatory framework.

countries. There is now a general agreement that where economic policy, governance, and institutions are reasonable, aid is effective, and where they are unreasonable, reforms in these areas can have a significant impact on growth and aid effectiveness (Burnside and Dollar 2000; World Bank 2003). There is also an emerging consensus that aid is more effective in countries with good governance and institutions that provide protection of property rights, ensure the rule of law, and create incentives for saving, investment, and entrepreneurship. The argument is that poorly governed countries should be allocated more of project aid involving a shorter-time commitment and narrowly focused set of activities (Radelet 2004). As governance and institutions improve, countries should have a greater ownership in designing aid programs, and should receive longer-term commitments from the donor community.

Trends and Patterns of Aid Flows, and Governance and Institutions in Nepal

Trends and Patterns of Aid Flows

Located between the two most populous countries in the world — India and China — Nepal is a land-locked country.[6] It shares a border with India to the east, west and south, and with China to the north. Its strategic location has attracted significant attention from bilateral donors including India, China, USA, and the former Soviet Union. As a consequence, foreign aid has been a main source of capital formation, contributing about 95 percent to the government's annual budget (in recent years, this share has fallen to about 60 percent) (Government of Nepal 2002). As the Cold War intensified, foreign aid as a percentage of GDP rose from just under two percent in the late 1960s to over ten percent by the end of the 1980s.[7] However, with the end of the Cold War, combined with the global decline in development assistance, aid flow to Nepal decreased so that by 2009 it was less than seven percent of GDP (Table 1). A fall in aid flows could also be attributed to domestic factors, such as political instability and the eruption of civil war in the mid-1990s, which lasted for over a decade. As the intensity of the civil war increased in the early 2000s, the donor community increasingly suspended aid programs due to staff security issues and the destruction of development projects caused by the conflict (Sharma 2006).

Bilateral aid remains an important component of Nepal's development budget, although its share has declined from 97 percent in the 1960s to 71 percent by the mid -2000s. Nepal has also attracted aid from multilateral sources. Among bilateral sources, India, USA, UK, Canada, Switzerland, and China are the major donors,

[6] Agriculture is the backbone of the Nepalese economy. It employs over eighty percent of the workforce, and contributes about thirty-three percent to GDP and ten percent to export earnings. Manufacturing, being in its infancy, contributes only about eight percent to GDP and employs less than three percent of the workforce. The urban-based services sector, which has grown rapidly in recent years, employs less than one quarter of the workforce. Tourism, in which Nepal has a comparative advantage due to its natural beauty, remains undeveloped.

[7] Note that this unprecedented increase in aid flows may also have been due to global increase in development assistance since the 1970s.

together accounting for over ninety percent of the total bilateral aid to Nepal as of 2006. The United States was the first western country to engage in Nepal, mainly to keep the communist influence out of the country. To achieve this goal, the U.S. government offered budgetary supports, helped construct the East-West highways, executed a number of rural and agriculture development projects, and sent thousands of economic and policy advisors to Nepal. In September 1949, when China invaded Tibet and Aksai Chi (India's territory in 1950), India became suspicious of its expansionist policy and perceived a security threat through Nepal. This prompted New Delhi to improve its access to Nepal by investing in transport and communication in the country for India's own security. Consequently, India channeled a significant amount of aid to Nepal in developing highways (between the key Indian borders and the major Nepalese towns), communication systems, and airports in strategic locations, including in Kathmandu (Mihaly 1965). By the late 1960s, India became Nepal's major development partner despite being a recipient of aid itself.

Table 1. Nepal's Average Total Aid, Bilateral and Grants Aid, 1960–2009

Year	Total aid (% of GDP)	Bilateral aid (% of total aid)	Grants aid (% of total aid)
1960–1969	1.86	96.65	99.89
1970–1979	3.87	68.24	71.38
1980–1989	10.10	54.65	64.17
1990–1999	10.25	60.87	67.68
2000–2009	6.84	71.82	81.52
1960–1909	6.57	70.75	77.52

Source: Estimated by the authors based on data from OECD (2013).
Note: Aid includes both loan and grants.

As India's presence in Nepal increased, China and the former Soviet Union began to assist Nepal with a view to reducing its dependence on India. Consequently, they helped established a number of import-substitution industries in the country, including cement, cigarette, textile, sugar, shoes, and modern brick factories. In addition, China also took interest in developing highways (i.e., the Arnica and Kodari) connecting Tibet with Kathmandu, and offered commodity aid to reduce Nepal's import dependence on India. Clearly, two regional powers (India and China) and two superpowers (the USA and the former USSR) had their own strategic interests in Nepal that, until very recently, dictated aid flows into the country (Government of Nepal 2002). As donors' self-interests dominated the aid agenda, it prompted corrupt behavior and discouraged institution building, which are crucial for aid effectiveness (Sharma 2011). Competing strategic interests of bilateral donors often created political tensions between two neighbors (i.e., India and China), and ruling elites in Nepal took advantage (Mihaly 1965).

A large proportion of the development assistance has gone into the transport, power, and communication sectors, attracting over 47 percent of the total aid during 1975–2009 (Table 2). The disproportionate allocation of aid to transport and communication was not only motivated by the donors' strategic interests, but also by the ruling elite's vested interests to improve the facilities in major urban centers where they lived.[8] There is no doubt that development of highways has facilitated the movement of people and improved administrative control between Kathmandu and the major regional centers. However, they have failed to integrate the rural-urban area in the absence of adequate feeder roads. Consequently, Nepal's rural areas remain under-developed (Khadka 1994).

Table 2. Distribution of Foreign Aid, by Sector, as Percentage of Total Aid, 1975–2009

Year/Average	Agriculture	Industry and commerce	Transport, power, and communication	Social services	Others
1975–1980	18.88	9.45	57.68	13.66	0.41
1981–1985	30.5	7.64	42.96	18.3	0.76
1986–1990	24.56	9.64	46.78	18.02	1.04
1991–1995	29.08	8.56	42.56	19.44	0.38
1996–2000	19.5	1.14	51.94	27.4	0.188
2001–2005	14.18	1.376	40.78	41.6	2.052
2006–2009	13.89	1.0	41.30	43.50	0.31
1975–2009	22.61	6.40	47.42	22.70	0.82

Source: Estimated by the authors, based on data from CBS (1991, 2001, and 2010).

Social services — including healthcare, education, and drinking-water access — have been the second largest recipient of aid in Nepal, absorbing some 23 percent of the total development assistance received in the period from 1975 to 2009. While allocation of about two-third of the aid resources to infrastructure and social services is a welcome development, these sectors are mismanaged and inefficient. Furthermore, most of these infrastructure and social-service facilities are located in major urban areas, rather than in rural and remote areas where eighty percent of Nepal's population live (Sharma 2011).

Even though agriculture is the backbone of the economy — in terms of its contribution to the economy and employment creation — it attracts less than one-fourth of the total aid (about 23 percent). The industrial and commercial sectors absorbed about ten percent of the total aid as of the 1980s, but aid to this sector has fallen significantly since then as Nepal embarked on market-oriented reforms in the late 1980s.

[8] Ruling elites also viewed these sectors as a means of rewarding their supporters and family members as they were directly or indirectly engaged in these activities.

Politics, Governance, and Institutions in Nepal

Nepal was ruled by the Shah dynasty for 240 years. The Shah rule only ended on August 15, 2008, when the country was declared a republic. For most of the monarchy period, the King of Nepal ran the country in an autocratic way, and people around him enjoyed privileges[9]. While the late King Birendra — who came to the throne after the death of his father King Mahendra in 1972 — led the way to a more or less non-violent political transformation by announcing a multi-party democracy in 1990, the institutionalization of corruption produced self-centered political parties that ignored the interests of the people they were supposed to represent. This led to a rise in poverty and inequality by the mid-1990s. The incidence of poverty rose from 33 percent in 1976 to 42 percent by 1995/1996 (Table 3). Rather than improve the democratic process by strengthening institutions and governance as well as addressing poverty and inequality, political parties rampantly engaged in corrupt behavior. Corruption in Nepal, one of the lowest among South Asian countries by the mid-1990s, continued to rise (Table 4).

Table 3. Incidence of Poverty in Nepal*

	1976/1977	1995/1956	2003/2004
Rural areas	33.0	42.0	31.0
Urban areas	22.0	21.0	9.0
Nepal	33.0	43.0	35.0

Sources: World Bank (1998) for 1998 data and CBS (2005) for 1995/1996 and 2003/2004.
**Based on minimum caloric requirement per person per day (i.e., 2,256 calories).*

In the presence of weak institutions, attempts to control corruption significantly deteriorated. The control of the corruption index had reached below thirty percent by 2011 from sixty percent in 1996 (see the database developed by Kaufman, Kraay and Mastruzzi 2010; World Bank 2010). This rising corruption at all levels, combined with growing inter- and intra-party conflicts, led to the government's failure to deliver jobs and the basic necessities of life to disadvantaged groups, particularly those in the rural and remote areas. Corruption also significantly increased the inequality between elites and non-elites. Furthermore, the rule of law deteriorated due to the lack of

[9] We must mention that in a military coup of 1846 Jung Bahadur Rana, a military commander, took over the country without overthrowing the monarchy, and established the hereditary prime-ministership of the Rana family. In a period of 104 years (1846–1950), the prime minister was the de facto ruler, while the King had no power. The Rana regime ruled the county ruthlessly. Following India's independence of August 15, 1947, the late King Tribhuvan — with the help of India and the Nepalese people — ended Rana's hereditary prime-ministership in 1951, bringing democracy into the country. However, Nepal's experience with democracy was rather short-lived. On December 15, 1960, the late King Mahendra — following the death of his father King Tribhuvan — overthrew the democratically elected government with the help of the army. The King argued that B.P. Koirala's government destabilized Nepal, while failing to accelerate growth by introducing an autocratic single-party regime, known as the Panchayat System (in fact, it was a widely-known pro-monarchy party) (see Khadka 1994 for a detailed discussion on this).

commitment to institutional reforms. Not only did corruption, nepotism, and favoritism rise significantly, but inter- and intra-party conflicts increased, undermining the effectiveness of governance along the way (Sharma 2011). Rising inter- and intra-party conflicts led to frequent changes in government. Power has changed hands twenty times since the introduction of democracy in Nepal in 1990. Also, several political parties split due to party infighting. For instance, the number of political parties increased from fewer than ten in 1990 to over 75 in 2010 (Sharma 2011). Rather than build the economy and disperse the benefits of economic growth among the people, political leaders and ruling elites were more interested in making money for themselves, and rewarding their supporters and family members (Gregson 2002; Panday 2000).

Table 4. Corruption Index for South Asian Countries, 1996–2009

Year/Country	1996	1998	2000	2002	2004	2006	2008	2009
Nepal	–0.31	–0.35	–0.43	–0.33	–0.73	–0.67	–0.75	–0.68
Bangladesh	–0.49	–0.72	–0.94	–1.02	–.57	–1.26	–1.41	–0.99
India	–0.36	–0.29	–0.38	–0.41	–0.34	–0.25	–0.22	–0.52
Pakistan	–0.104	–0.89	–0.76	–0.83	–1.11	–0.78	–0.76	–1.10
Sri Lanka	–0.27	–0.17	–0.18	–0.21	–0.16	–0.13	–0.14	–0.43

Source: Dani, Kaufmann, Aart Kraay and Palbo Zoido-Lobaton (2008) for data up to 2006 and World Bank (2010) for 2008 and 2009 data.
Note: The index ranges from –2.5 (most corrupt) to +2.5 (least corrupt).

As poverty and inequality increased, anger and frustration grew, particularly among youth in rural and remote areas. This enabled the Maoists, a left-wing underground political party, to mobilize the disadvantaged youth into the fight against the political and economic system. This led to the eruption of civil war in the mid-1990s. Against this background, King Gynandra~~ra~~who came to the throne after the Royal massacre of June 1, 200~~1~~– directly intervened in the day-to-day operation of the country by sacking the democratically elected government on February 1, 2005, using his constitutionally granted power. Thereafter, the King ruled the country in an autocratic way, with the help of 80,000 Nepalese troops, by blaming political parties for failing to address poverty and to tackle the ongoing civil war. The Royal coup increased political agitation in the country, forcing seven major political parties to enter into negations with the Maoists in early 2006 to fight jointly against the dictatorship of King Gynandra. As a result of protests and mounting international pressure (particularly from the USA and India) for democracy in Nepal, King Gyanendra reinstated Parliament and the prime minister he had fired earlier (Sharma 2006, 2011). Following the Constituent Assembly election, Parliament declared Nepal a republic on August 15, 2008, thus effectively ending the 240-year reign of the Shah dynasty. However, law and order in the country remained elusive. In fact, conditions continue to deteriorate due to the political parties' lack of commitment to sweeping institutional reforms (Sharma 2012).

Model Specification, Data, and Econometric Procedures

Following Burnside and Dollar (2000) and Simon Feeny (2005), we use the following model to investigate the link between aid, policy, and growth in Nepal:

$$RGDP = \beta_0 + \beta_1 SAV + \beta_2 AID + \beta_3 LAB + \beta_4 OPN + \beta_5 FP + \beta_6 MP + \beta 7 DUM + \mu$$

In this equation, *RGDP* is growth in real GDP, *SAV* is savings,[10] *AID* is foreign aid,[11] and *LAB* is labor force. *OPN, FP,* and *MP* represent openness, fiscal policy, and monetary policy respectively.[12] *DUM* is a democracy dummy, with the value of *DUM* being *0* for 1965–1989 periods (autocratic regime) and *1* for 1990–2008 (democratic regime). μ is an error term. Rather than using a single policy index as Burnside and Dollar (2000) do (raising significant controversy in recent years[13]), we rely on three separate policy variables — namely, openness, fiscal policy, and monetary policy — to capture their effects on long-run growth (see Appendix for definition of variables and data sources).

The econometric procedure adopted in this article follows the autoregressive distributed lag (ARDL) approach to co-integration, which is an established method of time-series modeling (Pesaran and Pesaran 1997). The main advantage of this approach is that it can be applied irrespective of whether the regressors are *I(1)* or *I(0),* and hence it avoids the uncertainty of unit root pre-testing. Furthermore, the ARDL approach yields precise estimates of long-run parameters and valid t-statistics even in the presence of endogenous explanatory variables. It is also effective in addressing non-stationary data series.[14]

[10] We use savings instead of investment to avoid the potential endogeneity between aid and investment variables.

[11] Foreign aid data includes financial and technical assistance, and excludes humanitarian aid.

[12] Our motive for using fiscal policy (FP), monetary policy (MP), and openness (OPN) as indicators of sound economic policy come from the work of Burnside and Dollar (2000) and B.P. Bhattarai (2009). For instance, sound fiscal policy results in a low budget deficit and stimulates economic growth by increasing the private sector's access to finance. Generally, when a government has high budget deficit, it tends to borrow from both internal and external sources, thus distorting private-sector investment and lowering economic growth. Similarly, a conservative monetary policy accelerates GDP growth rate by reducing the long-term average inflation rate (Feldstein and Stock 1994). At the same time, openness may lead to higher economic growth by improving access to know-how and technology, and by providing opportunities for scale economies (Burnside and Dollar 2000).

[13] For example, when Dalgaard, Hensen and Tarp (2004) re-estimated Burnside and Dollar's (2000) model, they found that the interaction between aid and policy in the model was ambiguous and statistically insignificant. This was a finding similar to earlier results obtained by Dalgaard and Hansen (2001) and Easterly, Levine and Rodman (2003).

[14] As a rule of thumb, non-stationary data are unpredictable and produce spurious results when the standard regression technique is applied.

The approach uses the error correction version of the ARDL as follows:

$$\Delta Y_t = a + \sum_{i=1}^{m-1} b_i \Delta Y_{t-i} + \sum_{i=0}^{m-1} c_i \Delta X_{t-i} + d_1 Y_{t-m} + d_2 X_{t-m} + \varepsilon_t$$

where α is a vector of constants, Y_t is a vector of endogenous variables, X_t is a vector of explanatory variables, and b and c are matrices of parameters.

There are two stages in the ARDL approach to co-integration. The hypothesis of no co-integration is tested in the first stage. The null hypothesis is that the coefficients on the lagged regressors in the error correction form of the underlying ARDL model are jointly zero. That is, there is no long-run relationship between them. The null hypothesis is defined by H_0: $d_1=d_2=0$, and tested against the alternative of H_1: $d_1\neq 0$, $d_2\neq 0$. The approach uses the F-test although the asymptotic distribution of the F-statistic in this context is non-standard, irrespective of whether the variables are $I(0)$ or $I(1)$.[15] If a long-run relationship between the variables is found, the long-run and short-run parameters are estimated using the ARDL method in the second stage. We set the lag length to be equal to two on all variables in the ARDL equation, which is considered a standard practice in empirical analysis. The model is tested using the Schwarz Bayesian Criterion (SBC) for lag selection, and diagnostic tests are performed for all equations (see Table 5 and Table 6). We use Microfit 4.1 to estimate the model.

Empirical Results

Our empirical investigation in this section is based on annual data from 1965 to 2008. We convert all variables into natural logarithms. As mentioned earlier, in the first stage of the modeling exercise we investigate the existence of a long-run relationship between the variables under investigation. In each case, the F-statistic exceeds the critical value of the upper bound, and the null hypothesis of no co-integration between the variables is rejected at the five percent level, irrespective of the order of their integration (see Table 5 and Table 6 for F-statistics results). Having established a long-run relationship (i.e., variables are found to be co-integrated) between variables of each model, we obtain the regression results. We report long-run coefficients for the ARDL models in Table 5 and Table 6. We obtain statistically satisfactory results, with a good adjusted R^2. All models under investigation pass the

[15] Hashem Pesaran and Bahram Pesaran (1997) provided appropriate critical F-values. They used two sets of critical values. The first set assumed that all the variables in the ARDL model were $I(1)$ and the second assumes that they were $I(0)$. This provided a band covering all the possible classifications of the variables into stationary and non-stationary, or even fractionally integrated ones. If the calculated F-statistic was above the upper value of this band, the null hypothesis was rejected indicating co-integration between the variables, irrespective of whether they were $I(0)$ or $I(1)$. If the F-statistic fell below the band, the null hypothesis of no co-integration could not be rejected while a value within the band implied that the test was inconclusive.

diagnostic tests at the five percent level, and cumulative sum and cumulative sum-square do not detect the presence of structural instability.

Our findings broadly suggest that aid is effective in the presence of sound economic policy, although not all policies are equally important (see Models B, C, and D in Table 5). For instance, we did not find any statistical evidence to suggest that aid is growth-enhancing when the trade regime is open.[16] Also, there is no statistical evidence to suggest that aid is effective in the presence of a democratic regime.

Table 5. Estimated Long-Run Coefficients from the ARDL Models

Dependent variable: GDP growth	Model A	Model B	Model C	Model D
AID	0.011	0.040	0.074	0.064
	(0.584)	(2.94)**	(3.151)**	(2.74)**
SAV	–0.003	–0.018	–0.019	–0.050
	(–0.174)	(–1.191)	(–1.105)	(–1.464)
LAB	2.004	2.513	2.856	2.697
	(21.849)*	(20.138)*	(12.110)*	(10.676)*
OPN	-	0.051	0.048	0.075
	-	(1.389)	(1.168)	(1.262)
MP	-	–0.219	–0.346	–0.252
	-	(–4.307)*	(–3.912)**	(–2.752)**
FP	-	-	-	–0.008
	-	-	-	(–2.322)**
DUM	0.034	-	–0.042	–0.025
	(1.047)		(–1.404)	(–0.779)
Constant	8.080	7.581	7.255	7.248
	(51.048)*	(78.744)*	(30.214)*	(27.646)*
F-test (for co-integration)	3.558**	4.491**	3.576**	4.013**
Adjusted $\bar{R}^2$	0.361	0.577	0.668	0.679
Serial correlation	0.632	0.550	0.544	0.428
Functional form	0.101	0.738	0.745	0.411
Normality	0.003	0.279	0.213	0.236
Heteroskedasticity	0.792	0.309	0.334	0.362

*Notes: Numbers in parenthesis are t-statistics: (a) *statistically significance at one percent, (b) **statistically significance at five percent, (c) ***statistically significance at ten percent. The F-test for co-integration is the test proposed by Moammad H. Pesaran and Yongcheol Shin (1995). The test for serial correlation is the LM test for autocorrelation. The test for functional form is Ramsey's RESET test. The test for normality is the test proposed by Carlos M. Bera and Anil K. Jarque (1981). The test for heteroskedasticity is the LM test. Lag length is based on SBC.*

[16] As suggested by a reviewer, we also used a bilateral openness index with India to check the sensitivity of our results. However, this did not change the results.

Table 6. Estimated Long-Run Coefficients from the ARDL Models, with AID Interaction Term

Dependent variable: GDP growth	Model E	Model F	Model G
AID	0.218	0.371	0.377
	(3.046)**	(3.362)**	(3.178)**
SAV	–0.016	–0.019	–0.019
	(–1.038)	(–1.105)	(–1.087)
LAB	2.512	2.856	2.864
	(20.131)*	(12.110)*	(11.606)*
OPN*AID	0.050	0.048	0.048
	(1.359)	(1.168)	(1.119)
MP*AID	–0.225	–0.346	–0.348
	(–4.380)*	(–3.912)**	(–3.771)**
FP*AID	-	-	–0.005
	-	-	(–0.157)
DUM	-	–0.042	–0.041
	-	(–1.404)	(–1.320)
Constant	7.601	7.255	7.249
	(78.290)*	(30.214)*	(28.946)*
F-test (for co-integration)	3.858**	3.091**	4.012*
Adjusted R^2	0.598	0.668	0.667
Serial correlation	0.550	0.554	0.539
Functional form	0.738	0.745	0.734
Normality	0.279	0.213	0.207
Heteroskedasticity	0.309	0.334	0.341

Note: See Table 5 for Notes.

Model A in Table 5 reveals that foreign aid does not have a statistically significant impact on growth when policy variables (i.e., openness, fiscal policy, and monetary policy) are not included in the model. When only two of the three policy variables (i.e., openness and monetary policy) are included in Model B, as expected, the coefficient for the aid variable has a positive sign and is statistically significant. This suggests that aid in the presence of sound monetary policy is growth-enhancing, possibly by creating favorable business climate. The coefficient for the foreign aid variable further improves in Model C (from 0.04 to 0.07) and the goodness of fit, as measured by adjusted R^2, increases (from 0.57 to 0.66) when the democratic dummy (DUM) is included along with openness and monetary policy variables, although the coefficients for *DUM* and openness are statistically insignificant. In Model D, we include all three policy variables simultaneously (i.e., openness, fiscal policy, and monetary policy) alongside *DUM*. This marginally improves the goodness of fit from 0.66 in Model C to 0.67 in Model D. In fact, Model D has the highest goodness of fit

as compared to other models. Statistically significant and negative signs for the coefficients of fiscal and monetary policy variables indicate that aid, in the presence of weak fiscal and monetary policies, lowers growth. The coefficient for *DUM* is statistically insignificant, although it has a negative sign.[17]

The results of the interaction terms between foreign aid and all three measures of policy variables we report in Table 6. There is only one interaction term that is statistically significant and it is the interaction between foreign aid and monetary policy, which has an expected negative sign in all three Models (E, F, and G). This finding provides further evidence in support of the view that weak monetary policy reduces aid effectiveness by increasing inflationary pressure, and lowers economic growth. These findings are consistent with the results we present in Table 5. We should note that the short-run effects of the error correction models (ECM) do not show a clear-cut link between aid and growth, perhaps due to the weak institutional capacity in the country.[18]

Conclusion

This paper contributes to the aid, policy, and growth literature using historical data from Nepal. The examination of the Nepalese experience is particularly interesting from the standpoint that the country has been one of the biggest recipients of aid among third-world countries. Despite this, Nepal remains a very poor country. This raises the question as to why the country has failed to grow despite the huge aid inflows. Our findings, as P.T. Bauer (1976) argued, tend to suggest that an easy access to foreign aid discouraged ruling elites from developing institutions and embarking on a wide range of policy reforms needed for growth. We find that aid is effective in the presence of sound economic policies, although not all policies are equally important. In general, monetary and fiscal policies appear to be crucial in making aid effective, while there was no statistical evidence to suggest that openness has any impact on aid effectiveness in Nepal. Also, we did not find any statistical evidence to suggest that democratic governance has a significant and positive impact on aid effectiveness. Our results clearly indicate the need to embark on policy reforms to improve governance and institutions in Nepal. Without comprehensive reforms in these areas, foreign aid is unlikely to make a significant difference in economic growth and poverty alleviation in the country. While these findings are interesting and provide useful insights to both policy-makers and the donor community, they must be taken with caution given that we have relied on a dummy variable to capture the effects of democratic governance on aid effectiveness in Nepal. There is a possibility that the use of a dummy variable may not have precisely captured the effects of a

[17] This may suggest that inability of a democratic regime to strengthen governance and institutions has made aid ineffective in Nepal. This interpretation is consistent with our discussions in section three and observations made by several commentators in the context of aid and growth in Nepal (see Bhattarai 2009; Panday 2001; and Sharma 2011).

[18] We do not report results on the short-run effects of ECM here due to space constraints, but they are available upon request.

democratic regime. As more data become available, however, future researchers can develop a measurable indicator of democracy to shed light on the aid, policy, and growth debate.

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Appendix

Definition of Variables and Data Sources

Label	Definition	Data source
RGDP	Growth in real GDP.	Government of Nepal, economic surveys, Ministry of Finance (various issues), Kathmandu, Nepal.
SAV	Savings defined as the ratio of domestic savings to GDP.	Government of Nepal, economic surveys, Ministry of Finance (various issues), Kathmandu, Nepal.
AID	Foreign aid measured as the ratio of aid to GDP. Foreign aid includes financial and technical assistance, and excludes humanitarian aid.	OECD (2013), economic surveys, Ministry of Finance, government of Nepal (various issues), Kathmandu.
LAB	Labor force is defined as the size of the economically active population.	Central Bureau of Statistics, Statistical Yearbook of Nepal (various issues), Kathmandu, Nepal.
OPN	Openness defined as the exports plus imports as percentage of GDP.	World Bank (2010) and OECD (2013).
FP	Fiscal policy defined as the fiscal deficit as percentage of GDP.	Government of Nepal, economic surveys (various issues), CBS (various issues), Kathmandu, Nepal.
MP	Monetary policy proxied by M2.	Quarterly Economic Bulletin, Nepal Rastra Bank, Kathmandu, Nepal.