

# Multilateral and bilateral aid policies and trends in the allocation of electrification aid, 1970–2001



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## ABSTRACT

One of the greatest challenges facing developing countries is gaining access to the capital necessary to achieve widespread electrification, and for this aid is essential. We examine the history of World Bank and other aid agencies' policies in fostering electrification around the world. A dataset comprised of 3745 multilateral and bilateral electrification aid projects is used to evaluate the determinants of such aid in the last three decades of the 20th century. Our major finding is that electrification aid by the 1990s had moved toward relatively poorer countries, except for those in Africa, and toward countries with better governance structures. Increased aid also flowed to countries that had restructured their electric power sector, likely reflecting the liberalization and privatization policies promoted by the World Bank and other aid donors from the mid-1980s onwards.

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## 1. Introduction and historical context

Nitin Desai, Secretary General of the United Nations' World Summit on Sustainable Development (Johannesburg 2002) emphasized the importance of access to electricity for development: "Electricity has profoundly transformed the industrialized world and led from the era of smoke chimneys into the era of knowledge-based services shaping the 21st century.... Universal access to affordable energy services including electricity is a prerequisite for achieving the goals and objectives of sustainable development.... Electricity permeates every aspect of economy and society" (*Electricity for All*, 2002, 2–3). One of the greatest challenges facing developing countries is gaining access to the capital necessary to achieve widespread electrification, and for this aid is essential.

Probably the most important economic characteristic of an electric utility is its extraordinary capital intensity. This means that attracting outside financing is essential; new projects, or expansion of existing systems, cannot be financed from retained earnings. Finance can come from the private market, from governments, or, as in the post-World War II era, from multilateral and bilateral development agencies. From the earliest days of the industry in the

1880s to contemporary times, the necessity of raising an adequate supply of new capital has been a central concern for all electric utilities. This has been especially difficult in areas of the world that are relatively poor and thus presently are under served.<sup>1</sup> From the 1880s to the 1930s the electrification of the world was spearheaded by the major U.S. and German electrical equipment manufacturers – General Electric, Westinghouse, Siemens, and AEG – and their affiliated utility holding companies, eventually assisted by a wide variety of other financial intermediaries. These private firms, most of which were multinational, raised a substantial amount of capital to invest in electric utilities in the developing areas of the world, including colonial dependencies. These were areas where domestic capital simply was inadequate to finance electrification. Multinational enterprises and private international finance played a crucial role in expanding access to electric power in urban areas around the world in the late nineteenth and early twentieth centuries. But these sources of investment capital could not be sustained through the political and economic difficulties of the middle decades of the twentieth century and utilities turned to other sources of finance, particularly governments (Hausman et al., 2008, 190–261). A shift in electricity finance then occurred, as it also did in other sectors,

<sup>1</sup> The International Energy Agency estimated that the world will need to add about 4530 GW of capacity by 2030, representing cumulative investments of \$13.6 trillion. A majority of these investments will be in developing countries. International Energy Agency (2008), 139.

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such as telecommunications and railways (Millward, 2005; Clifton et al., 2011).

The Great Depression and World War II seriously disrupted the flow of international capital to the electric utility industry, which nevertheless retained a voracious appetite for finance. Furthermore, by the late 1940s electricity was widely recognized as a necessity of modern life rather than a luxury, and foreign ownership of such an essential service frequently was viewed skeptically by political decision makers. Tensions among foreign owners, customers, and governments grew worse over time. Although there were some exceptions, new private foreign capital stopped flowing to the industry, and existing foreign capital either was voluntarily withdrawn (through private domestic purchases or government buy-outs) or confiscated (through nationalizations). Almost all electric utilities in every part of the world by the mid-1970s had become “domestic” firms; that is, they became owned by domestic investors or by governments (Hausman et al., 2008, 233–61).

Even as electric utilities became almost entirely domestic in the post-World War II era, the need remained for a constant stream of additional capital. Infrastructure had to be rebuilt in the aftermath of the war, and attracting capital remained a critical problem in developing countries, including those that became independent. Several institutions (the World Bank, most prominently) were created in the aftermath of the war to begin dealing with this problem. These were multilateral organizations, with the more developed countries contributing (or using their credit to guarantee) the bulk of capital made available. Over time, many other multilateral development agencies were created.<sup>2</sup> In addition, after the recovery from World War II, governments in developed countries began contributing directly to electrical infrastructure investment by providing a substantial amount of bilateral aid. This aid sometimes was directly related to Cold War policies.

Just as large domestic, often government-owned, electric utilities in developing countries became the norm, the political winds shifted again. Beginning in the 1980s and accelerating in the 1990s, a privatization, liberalization, and restructuring movement, part of the (neoliberal) “Washington Consensus,” gained world-wide momentum (Clifton et al., 2006).<sup>3</sup> Private foreign capital (foreign direct investment) was once again welcomed, and private investment in the electric utility sector revived (Hausman et al., 2008, ch. 7, Hausman and Neufeld, 2011). Many of the multilateral aid agencies created in the post-World War II era welcomed this development and fostered it since it offered new and potentially productive outlets for their grants, credits, and lending (Manibog et al., 2003; Besant-Jones, 2006). But the movement faltered once again, as the first years of the twenty-first century, according to a 2006 World Bank publication, came to be viewed as “a period of disappointment with private sector participation in infrastructure in the developing world” (World Bank, 2006).<sup>4</sup>

We focus here on the allocation of multilateral and bilateral electrification aid in the last third of the twentieth century. We document fluctuations and trends in the level of electrification aid and identify large donors and recipients of such aid. Finally, we estimate an econometric model to explain the pattern of

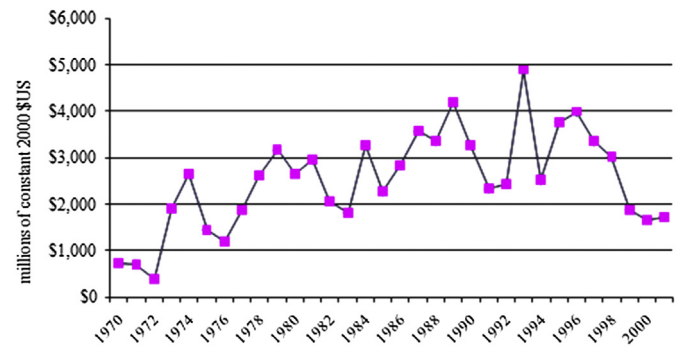


Fig. 1. Total multilateral and bilateral electrification aid, 1970–2001. Source: Project-level Aid Database.

electrification aid across countries and time, based on a large sample of aid projects. The data on which this paper is based came from the Project-Level Aid Database (PLAID, version 1.0), an ambitious endeavor “to collect and standardize data on every individual assistance project committed since 1970” (Hicks et al., 2008, 265–67).<sup>5</sup> Aid projects include grants, mixed loans and grants, loans at discretionary rates from multilateral organizations, loans or loan guarantees at market rates, technical assistance, and sector aid program transfers in cash or in kind. A search of several hundred thousand observations in the database resulted in the identification of 3745 electrification aid projects between 1970 and 2001.<sup>6</sup> All figures and tables in this paper are constructed using this data.

## 2. Total electrification aid

Fig. 1 presents the aggregate annual amounts of electrification aid from 1970 to 2001 in constant (2000) U.S. dollars. The graph reveals the erratic fluctuations of annual aid support from the early 1970s to the late 1990s, and highlights the severe reduction of support, to levels not seen in real terms since the mid-1970s, at the end of the period. Some of the decline in aid in those years was made up with private investment, but it is clear that annual bilateral and multilateral electrification aid has been erratic.<sup>7</sup> Still, such aid was an important mechanism for funding electrification projects in the post-World War II era. We seek to explain the historical pattern of aid to particular countries in order to assess whether donor aid policies impacted the flow of aid.

## 3. Multilateral electrification aid and the role of World Bank policy shifts

Table 1 lists the largest multilateral aid agencies in order of their cumulative support for identified 1970–2001 electrification projects. Multilateral agency aid was highly concentrated. The three

<sup>2</sup> Easterly and Pfitze (2008) identify seventeen contemporary multilateral and thirty-two bilateral aid agencies.

<sup>3</sup> This frequently has been referred to, erroneously we believe, as a “deregulation” movement. In the electric utility sector, there never were intentions to completely deregulate the industry; at best, only partial deregulation was sought. See MacAvoy (2007), 24–34. On the “Washington Consensus,” see Williamson (1993); Gore (2000).

<sup>4</sup> This view is supported by Estache et al. (2009) who note (p. 191), “Now, 15 years after the first large-scale utilities reforms were launched, the pendulum is swinging back.”

<sup>5</sup> The data used in this paper should be considered a large sample of electrification aid projects from 1970 to 2001. Military aid, private long-term capital, and foreign direct investment are excluded, as is aid from the former Soviet Union. In 2009 PLAID merged with another database, Accessible Information on Development Activities (AiDA) to form AidData, a constantly evolving database now in version 3.0. (<http://www.aiddata.org>).

<sup>6</sup> We searched for and checked every entry where “elect” appeared in project description fields. If a single project received aid in two periods, it was counted in both of those periods. We assume that projects missed using this procedure were randomly distributed.

<sup>7</sup> Power sector private investment in developing countries rose gradually during the 1990s, peaked in 1997 at over \$40 billion, and fell off erratically to 2002, at which point it was less than \$5 billion (International Energy Agency, 2008, 369).

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