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VOLATILITY IN SWEDISH AID

THE CASE OF SIX LONG-TERM PARTNER COUNTRIES

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Volatility in Swedish Aid

-The case of six long-term partner countries

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Abstract

There is significant evidence that aid volatility decreases aid effectiveness and impedes economic growth. Agreements like the 2005 Paris Deceleration on Aid Effectiveness therefore call upon development partners to make aid less volatile and more predictable. A problem is that some efforts advocated in the Paris Declaration are not consistent with lowering aid volatility. In cases where trade-offs emerge, reducing volatility does not seem to be prioritized.

Looking specifically at the case of Sweden, this working paper aims to provide insight to research and policies concerning aid volatility and generate comparable estimates of volatility in foreign aid. The paper uses the coefficient of variation (CV) to estimate the volatility of Swedish Official Development Assistance (ODA) and Country Programmable Aid (CPA) to six different partner countries (Cambodia, Palestine, Mozambique, Rwanda, Tanzania and Uganda). Values are then compared to the corresponding volatility of total aid flows (from all donors) to the same six recipients. Out of these countries, Rwanda stands out with the highest volatility by far.

A temporary large decrease in aid to Tanzania in 2014 (after an alleged corruption scandal) and major aid shortfalls to Rwanda in 2004, 2008 and 2012 suggests that single-year shortfalls of aid is the main contributing factor behind the volatility of aid flows from Sweden to these six partner countries. The study also finds CPA of total aid to be slightly more volatile than ODA. For Swedish aid alone however, the study does not find one measure to be consistently more volatile than the other.

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1. Introduction and background

Methods and policies concerning foreign aid evolve continuously as they encounter new challenges. Academic literature has highlighted volatility in aid flows and its apparent negative impact on aid effectiveness as one such challenge. Politicians and development workers are, as a result, striving towards making aid more predictable and less volatile, in line with international agreements.

The need to increase effectiveness and predictability of development assistance is a key feature of agreements like the 2015 Addis Ababa Agenda for Action and the 2030 Agenda. Reducing aid volatility is regarded as one of the most important means for accomplishing these goals. Discussions at international conferences held inter alia in Paris, Addis Ababa, and Nairobi accordingly stress the need for partners to commit to long-term plans in order to make their development cooperation more predictable and transparent.

The second High-Level Meeting of the Global Partnership for Effective Development Co-operation, held in Nairobi in 2016, was the most recent follow-up of the commitments to development effectiveness. The participants at the meeting evaluated the progress from the earlier conferences and discussed how the effectiveness work would continue. As a result of the meeting, aid donor countries reaffirmed commitments to increase the predictability of their development assistance.[1]

Volatility is a measure of how much a value deviates from the mean value of a variable. If deviations are high, the volatility is high, and vice versa. Low volatility of an aid measure therefore translates to relatively steady aid flows whereas high volatility is a result of large fluctuations in aid flows over time. Aid volatility has similar implications as unpredictability of aid, although they are not identical concepts. The main difference is that volatility reflects fluctuations of *actual* aid flows, while the level of predictability is related to the recipients' *expectations* of aid flows. Since there is a lack of reliable data on aid expectations,[2] the predictability of aid is very difficult to measure, whereas volatility is quite easily estimated using time-series data on aid disbursements.[3] Volatility measures can nonetheless be used as an empirical proxy for predictability.

In reality, most foreign aid is both volatile and unpredictable. Given that both volatility and unpredictability are harmful to development, the best-case scenario would be predictable

[1] The Global Partnership for Effective Development Co-operation (GPEDC), (2016). *The Nairobi Outcome Document*, 1 December 2016, available at: http://effectivecooperation.org/wp-content/uploads/2016/12/Out comeDocumentEnglish.pdf

[2] The main limitations according to the Aid Effectiveness Agenda are the difficulty of having such data for a long enough time period, and the lack of comparable cross-country data on pledged amounts of foreign aid.

[3] Bigsten, A., Platteau, J.P. and Tengstam, S. (2011). The Aid Effectiveness Agenda: The benefits of going ahead, The European Union, p.86.

aid that is non-volatile. Such aid would arguably be reliable for long-term investments and relatively easy to administrate.[4] There are two other theoretical cases; namely predictable aid that is volatile, and aid that is unpredictable and non-volatile. In the former case, aid flows would vary over the years, but still correspond to the amounts pledged by the donor countries and organisations each year. The latter case implies stable actual aid flows, but variation in the pledged amounts.[5]

There is plenty of empirical evidence suggesting that volatility in foreign aid decreases the effectiveness of aid. Apart from estimating various effects of aid volatility, the literature suggests extensive opportunities for donor countries and multilateral donor organisations to reduce volatility through policy change and coordination. Although progress has been made over the years, for example as donors agreed to provide aid measuring up to 0.7 percent of their Gross National Income (GNI),[6] the various agreements have often proved difficult to fulfil. There appears to be constraints keeping donor countries from coordinating their development assistance and guaranteeing more predictable and stable aid flows over the long run.[7]

This working paper aims to estimate the level of volatility in Swedish foreign aid and to discuss aid volatility as a global issue. An overview of the academic research on the field is provided, describing the dynamics within the literature and discussing the complexity of aid volatility as a potential problem. Further, relevant policies on how to handle the problem are described, and Swedish policies which may have contributed to aid volatility are discussed.

The volatility of Swedish aid flows to six long-term partner countries are then estimated, using two different aid measures. Keeping the background theories and empirical research in mind, the resulting volatilities are analysed, followed by some concluding remarks. The objective is not to conclude with a list of advice, but rather to provide insight to Swedish aid volatility levels for a few partner countries and the possible negative effects of this volatility

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[4]Hudson, J. and Mosley, P. (2008). The macroeconomic impact of aid volatility. *Economics Letters*, 99(3), pp. 486-489, and Mosley, P. and Suleiman, A. (2007). Aid, agriculture and poverty. *Review of Development Economics*, 11(1), pp.139-159, find that aid volatility affects investments negatively.
Bulíř, A. and Hamann, J. (2008). Volatility of Development Aid: From the Frying Pan into the Fire?, *World Development*, 36(10), pp.2048-2066, find that volatile aid flows make it difficult to manage the macroeconomy in poor aid-dependent countries.

[5] Bigsten, A., Platteau, J.P. and Tengstam, S. (2011), op. cit, p.86.

[6] A large number of OECD members who provide aid agreed that 0.7% of a donor's Gross National Income (GNI) should consist of official development assistance (ODA), and 0.15-0.20% should go to recipients which are catalogued by the OECD Development Assistance Committee (DAC) as the least developed countries in the world.

[7] See e.g. Bigsten, A. and Tengstam, S. (2015). International Coordination and the Effectiveness of Aid. *World Development*, 69, pp.75-85, and Bourguignon, F. and Platteau, J.P. (2015). The Hard Challenge of Aid Coordination. *World Development*, 69, pp.86-97.

1.1 Why is aid volatility considered to be a problem?

Econometric research suggests that aid volatility can have a negative impact not only on the effectiveness of aid, but also on several other economic and political variables.[8] The macroeconomic effectiveness of aid in poor countries is compromised by aid volatility, according to Lesink and Morrissey.[9] Nielsen et al. contend that there are mechanisms through which aid shocks can induce violence, i.e. that aid volatility can be an indirect cause of conflict.[10]

There are also various examples of critical research, highlighting the difficulty of evaluating levels of volatility and its consequences. One example is Hudson, who argues for the presence of heterogeneity and spill over effects between different aid sectors and concludes that volatility measures which have not considered this should be underestimated.[11]

To be able to fully analyse the impact of aid volatility, Chauvet and Guillaumont stress the need to understand whether aid is pro- or countercyclical with respect to domestic output.[12] Indeed, some discussion on the cyclicality of aid is typically included in research papers tackling the effects of aid volatility. Most studies find aid to be mildly procyclical, suggesting that - in times when recipient country output is high - aid disbursements are typically large, and vice versa. These findings, although unfortunate, are important. If aid was countercyclical, volatile aid flows would not necessarily be bad for the receiving economy. As noted by Bulíř and Hamann, countercyclical aid could act as an insurance mechanism when the recipient's GDP is hit by a negative shock.[13] On the contrary, procyclical aid would not have any stabilizing effect on the macroeconomy, but rather increase the impact of negative shocks, making aid volatility highly problematic.

The literature further suggests several ways for donors to discourage these problems. Eifert and Gelb stress the need for donors to extend their horizons of funding to enhance

[8] Rodrik, D. (1990). How should Structural Adjustment Programs be designed? *World Development*, 18(7), pp.933-947, finds, for example, that the volatility of a country's revenue inflows - largely affected by foreign aid volatility in the case of highly aid-dependent countries - may result in both instable policies and volatile national expenditure.

[9] Lesink, R. and Morrissey, O. (2000). Aid instability as a Measure of Uncertainty and the Positive Impact of Aid on Growth. *Journal of Development Studies*, 36(3), pp.31-49,

[10] Nielsen, R.A., Findley, M.G., Davis, Z.S., Candland, T. and Nielson, D.L. (2011). Foreign Aid Shocks as a Cause of Violent Armed Conflict. *American Journal of Political Science*, 55(2), pp.219-232.

[11] Hudson, J. (2015). Consequences of Aid Volatility for Macroeconomic Management and Aid Effectiveness, *World Development*, 69, pp.62-74.

[12] Chauvet, L. and Guillaumont, P. (2009). Aid, volatility, and growth again: When aid volatility matters and when it does not. *Review of Development Economics*, 13, pp.452-463.

[13] Bulíř, A. and Hamann, J. (2008). Volatility of Development Aid: From the Frying Pan into the Fire?, *World Development*, 36(10), pp.2048-2066.

predictability of aid.[14] Moreover, by creating a buffer reserve, donors could better handle uncertain funding and avoid sharp fluctuations. Even if the fluctuations remain, increasing their predictability should make them easier for the recipients to handle, by allowing them to incorporate expected shortfalls and windfalls when planning the use of aid.

Although volatility and unpredictability tend to go hand in hand, there are empirical cases where volatile aid flows are accurately predicted, and not necessarily regarded as problematic. For instance, predictable volatility in aid sometimes reflects changes in policy. When exploring Swedish development work in Uganda, Kruse for example finds Swedish aid to perform well in terms of predictability, even though several projects and thematic areas have been phased out.[15] The reductions of funding to these projects were carefully planned and announced before being implemented.[16]

From the empirical literature, it also seems difficult for donors in general to abide by the commitments they make. The amounts of aid which the donors pledge usually do not correspond to the observed aid disbursements. Even though measuring commitments are somewhat arbitrary due to lack of comparable data, Bulíř and Hamann manage to estimate aid disbursements to be about one third less than the corresponding commitments made by donors between the years 2000 and 2003.[17] The same authors argue against the notion that aid volatility is only problematic if it is unpredictable and contend that even volatile aid that is fully anticipated is problematic. An aid recipient who could foresee exactly when and how much aid disbursements will go up and down would want to smooth revenue by borrowing in capital markets. The problem is that highly aid-dependent countries are less integrated into financial markets, and therefore not able to adjust nearly as much as they would want.[18] Because of liquidity constraints, the authors contend that aid volatility can have adverse effects on poor economies even when aid is predictable.

However, if recipients could anticipate the volatile nature of their aid inflows, they should be able to smooth revenue themselves simply by saving "excess" aid to compensate for the predicted "shortage" of aid that follows. The argument by Bulíř and Hamann in this regard presumes a lack of fiscal discipline among aid recipient countries, or alternatively, that they are constrained both from borrowing and saving. For example, saving aid which exceeds

[14] Eifert B. and Gelb, A. (2006). Improving the dynamics of aid: Toward more predictable budget support. In Koeberle, S., Stravreski, Z. and Walliser, J. (eds), *Budget support as more effective aid? Recent experiences and emerging lessons*, Washington, DC: World Bank.
[15] Kruse, S. (2016), *Exploring donorship – Internal factors in Swedish aid to Uganda*, EBA Rapport 2016:09, Expertgruppen för biståndsanalys.
[16] Total aid to Uganda is, however, not very volatile. Funding has been reallocated within the country due to the political climate with high corruption, but not in a rapid or unpredictable manner. Kruse (2016), op. cit.
[17] Bulíř, A. and Hamann, J. (2008). Volatility of Development Aid: From the Frying Pan into the Fire? op. cit.
[18] Eifert and Gelb, (2006), op. cit. also discuss the fact that low-income countries lack access to capital markets, and unpredictable aid disbursements contribute to macroeconomic instability in these countries.

the "normal" level might go against the donor's requests. One of the Paris principles states that both donors and recipients should focus more on measurable results from development work. Donors may therefore demand that the aid they provide is quickly put into use, so that it can show results in the near future. This would reduce the ability of the recipients to save aid as a buffer for expected future shortfalls, and instead encourage them to spend more when economic activity is high, augmenting the procyclicality of aid.

Countries that are highly aid-dependent generally experience much more volatile aid inflows than others, according to research by Bulíř and Hamann.[19] Logically, poor countries that are highly dependent on foreign aid should be hit especially hard when revenues from foreign aid are volatile. Simply put, the larger the fraction of a county's national income that consists of foreign aid, the more impact aid volatility should have on fluctuations in GDP, all else equal.

According to Raddatz, shocks in foreign aid account for 25 percent of the external fluctuations that affect volatility in output in poor countries.[20] Volatility may hinder economic growth and could serve as a partial explanation for poor economic performance. The negative effects on national output are, in turn, linked to many other direct and indirect effects. The direct effects, as already mentioned, concern unpredictable volatile aid as an unreliable source of funding which makes it difficult for receiving governments to plan ahead. Efforts risk being wasted due to sudden shortfalls in aid, when well-functioning projects need to be shut down or postponed because of a temporary lack of money. Such problems have been discussed by Hudson and Mosley[21]and Mosley and Suleiman[22] , among others.

In addition to these direct negative consequences of aid volatility, some argue that there are also several indirect effects which should be accounted for. Homi Kharas has, for example, suggested that volatility might damage economies and welfare even more when considering the consequences altogether.[23] The main indirect negative effects from aid volatility, according to Kharas, include increased fragmentation of aid, corruption, and undermining of democratic institutions.[24] Governments receiving highly volatile and

[19] Bulíř, A. and Hamann, J. (2008). Volatility of Development Aid: From the Frying Pan into the Fire? opt. cit.; Bulíř, A. and Hamann, J. (2003). Aid Volatility: An Empirical Assessment, *IMF Staff Papers*, 50(1), pp.64-89.

[20] Raddatz, C. (2007). Are external shocks responsible for the instability of output in low-income countries? *Journal of Development Economics*, 28(1), pp. 155-187.

[21] Hudson, J. and Mosley, P. (2008). The macroeconomic impact of aid volatility. op. cit.

[22] Mosley, P. and Suleiman, A. (2007). op. cit.

[23] Kharas, H. (2008). *Measuring the cost of aid volatility*, Working paper 3, Wolfensohn Center for Development. The Brookings Institute. See Appendix 1 for an outline of the study.

[24] This has been explored furthered by Nielsen, R.A., et al. (2011). Foreign Aid Shocks as a Cause of Violent Armed Conflict. *American Journal of Political Science*, 55(2), pp.219-232. See Appendix 1 for an outline of the study.

unpredictable aid are restrained from making long-term investments, and sudden shortfalls in aid might force them to raise taxes. Such policies are commonly unpopular among the public, and could cause the government to lose support, potentially paving the ground for populist movements. This is not helped by the fact that aid recipient countries are not seldom newly established and fragile democracies.[25]

The fact that previous studies have found volatility to reduce aid efficiency is especially noteworthy as it indicates that the efficiency of a certain amount of aid can be increased. This in turn suggests that more could be accomplished without having to increase aid disbursements, since a given amount of aid would last longer when used more efficiently. Contrariwise, an increase in efficiency would allow for reductions in aid flows without necessarily decreasing accomplishments.

However, not all types of aid volatility are inevitably bad for the recipient country. Foreign aid can be volatile by its own nature, and sudden windfalls or shortfalls can be consistent with its purposes. The most prominent example are aid flows which respond to humanitarian or natural disasters. Devastating events that occur unexpectedly tend to require an upsurge in resources in order to minimize the damage for the affected people and economies. Such humanitarian aid is naturally volatile and unpredictable (as the cause is unpredictable). Natural and humanitarian disasters affect economic growth and development work negatively, and resources need to be reserved for things like food and water, reconstruction of material damage, and medical assistance. This kind of sudden increase in resource allocation cushions the negative effects on the economy, rather than interfering with the local business cycle.

As Kharas points out, assuming that total aid amounts are fixed implies that humanitarian aid by definition crowds out long-term development cooperation.[26] However, keeping aid flows steady after an economically damaging disaster would likely lead to more damage than meeting the urgent need for temporarily increased aid, even if funding to other development efforts had to be reduced. Still, reallocated aid from development cooperation to humanitarian assistance carries the risk of decreasing development cooperation in times when it is needed the most.

1.2 Agenda principles and aid volatility

The Nairobi outcome document, adopted in December 2016 at the second high-level meeting of the Global Partnership for Effective Development Co-operation, concludes that, for some partner countries and principles, progress has been slow in implementing the

[25] Bigsten, A., Platteau, J.P. and Tengstam, S. (2011), op. cit, p.87
[26] Kharas, H. (2008) op. cit.

reforms highlighted in the Paris agenda.[27] Taking a closer look at the goals, the donor behaviour, as well as the academic literature on aid volatility, gives some suggestions for why this might be.

The Paris principles and other recommendations stemming from international conferences on aid effectiveness are sometimes conflicting and not always in line with the interests of individual actors. Some researchers argue that the suggested reforms are not compatible with aid volatility reductions. For instance, Eifert and Gelb believe that increased donor coordination, aid flows and selectivity, are likely to cause *higher* volatility of aid flows.[28]

The first conflict pinpoints the trade-off between ownership contra accountability and control. It is not easy to decide on the degree of conditionality, i.e. what conditions the recipient must fulfil to be eligible to receive aid, and maintain a high level of ownership, while minimizing the level of corruption and inefficiency.[29] Aid conditions are a way for donors to influence how, and by what means, the recipients use the aid. The ownership principle has the objective to reduce the presence of such conditions and let recipient governments decide for themselves how to allocate aid resources.

While conditionality may help create better financial policies and discourage corruption in poor countries, it may also cause new problems in the process. Attaching conditions to aid not only works against the ownership principle but can also cause more aid volatility.[30] If recipients fail to meet the conditions, their aid is abruptly decreased. It is then increased again when the recipient lives up to the conditions. Aid can in this way be designed to be volatile, by encouraging "good" behaviour and punishing "bad" behaviour. Volatility is then endogenous to recipient governance and economic management.[31] In short, removing aid conditionality could reduce volatility and increase ownership, but at the expense of a potential increase in corruption and lower ability to ensure accountability.

The next issue concerns the difference between supporting projects and programs. To implement the Paris agenda, donors need to shift focus from project- to program-based aid, both as a mean for reducing conditionality and increasing ownership, and to reduce the transaction costs which contribute to the ineffectiveness of aid. Bigsten and Tengstam find

[27] The Global Partnership for Effective Development Co-operation (GPEDC), (2016). op. cit.
[28] Eifert B. and Gelb, A. (2006). op. cit.
[29] Söderberg, S. (2017, September 18). Interview at the Ministry of Foreign Affairs. (M. Svedberg, Interviewer).
[30] Bulíř, A. and Lane, T. (2004). Aid and fiscal management, Available in Gupta, S., Clements, B. and Inchauste, G. (2004), *Helping countries develop: The role of fiscal policy*, Washington DC: International Monetary Fund.
[31] Eifert and Gelb, (2006), op. cit.

that donors are often unwilling to do so, since increasing the share of general budget support reduces their political influence on development.[32]

A larger share of aid as budget support reduces the donor government's ability to fight corruption and monitor that the provided resources fulfil their aim instead of being misused.[33] Eifert and Gelb claim that general budget support or program aid tends to be more vulnerable to fluctuations than project support which stretches over several years. They believe that the shift from project to program aid, in combination with increased donor coordination, might result in *increased* aid volatility.[34] This is because project aid is usually more predictable than program aid, with more stable funding over time.

Unpredictability is likely followed by high volatility, indicating that program aid is more volatile than project aid. Unless increased program aid is complemented with efforts to increase aid predictability, the gain in lowered transaction costs might be offset by the loss from increased volatility costs.

In order to minimize efficiency losses that come with aid volatility, Eifert and Gelb, advocate in favour of a 'flexible pre-commitment'-strategy. They argue that this system, under which aid would be pre-committed several years ahead on the basis of an initial performance assessment, would generate smaller efficiency losses by increasing predictability and reinforcing credibility of performance based allocation.[35] Long-term donor commitments may however generate deadweight losses[36], compared to pledges one year at a time. Hence, there is a potential trade-off between encouraging donors to make long-term commitments, which likely benefits the stability of aid flows, and avoiding other losses of efficiency. When aid is allocated and used inefficiently, resources that could have generated better results elsewhere are considered lost.

Overall, it is evident that volatility and predictability need to be taken into account when analysing the potential effects from implementing the Paris principles. Since some of the promoted efforts risk increasing aid volatility, they need to be balanced with efforts for making aid predictable and stable. Volatility is costly, and this cost should not be neglected when evaluating reform benefits. Otherwise, development work will remain ineffective even after the other principles and policy changes are implemented. At worst, the costs might exceed the benefits.

[32] Bigsten, A. and Tengstam, S. (2015). op.cit. See Appendix 1 for an outline of the study.
[33]Bourguignon, F. and Platteau, J.P. (2015). op. cit.
[34] Eifert and Gelb, (2006), op. cit.
[35] Eifert and Gelb, (2006), op. cit.
[36] A deadweight loss represents the loss in efficiency due to an inefficient allocation of resources. The presence of a deadweight loss hence indicates that resources can be put to better use if reallocated in the right way.

1.3 Volatility in Swedish foreign aid

By international comparison, Sweden performs well in its dedication to international policies and consideration of the recipients when planning and implementing development assistance. Apart from having had a high ODA/GNI ratio for many years, Sweden is highly ranked in the Commitment to development index (CDI), which has been compiled by the Center for Global Development (CGD) since 2003. Even so, there are challenges when it comes to maintaining predictability in Swedish development assistance. For instance, it is argued that some Swedish policies may contribute to volatility of foreign aid disbursements.

The Swedish government first formulated a target of 1 percent ODA/GNI in 1968, and has managed to reach it in most years since 1976.[37] This policy can potentially create volatility in aid disbursements. The goal is not to keep aid flows steady in absolute terms, but to keep them steady relative to national income. When GNI fluctuates, the ODA will also be volatile if the government and agencies manage to keep it around the target.[38] Whether this has had any real impact on the volatility of Swedish aid remains to be investigated.

It is important to be aware that statistics and analyses on foreign aid differ depending on which measurements and definitions are used. There are differences between the aid reported to OECD DAC, the aid frame, and the budgeted aid.

The aid frame constitutes of all aid-related costs which are classified as ODA, most of which are appropriated under category 7 in the Swedish national budget.[39] The costs within category 7 constitute the aid budget. Hence, not all costs within the aid frame count as budgeted aid.

The gap between the aid frame and the aid budget consists of so-called deductions from the aid frame. Simply put, these make up the costs which are within the aid frame but are not categorized as aid in the budget.

In 2016, the aid budget made up 75 percent of the aid frame, and the deductions for refugee costs and a few other expenses constitute the remaining 25 percent.[40] The amount that

[37] Proposition 1968:101. *Knngl. Maj.ts proposition till riksdagen angående långtidsplan för det statliga utvecklingsbiståndet m. m.; given Stockholms slott den 15 mars 1968.* Available at: https://www.riksdagen.se/sv/dokument-lagar/dokument/proposition/knngl-majts-proposition-nr-101-ar-1968_ET30101/html.
[38] Söderberg, S. (2017, September 18). op. cit.
[39] Proposition 2014/15:1. *Budgetpropositionen för 2015.* Finansdepartementet. Available at: http://www.regeringen.se/49bb10/contentassets/f479a257aa694bf097a3806bbdf6ff19/forslag-till-statens-budget-for-2015-finansplan-och-skattefragor-kapitel-1-7.
[40] Expertgruppen för biståndsanalys (2016). *Vem beslutar om svenska biståndsmedel? En översikt.* EBA Rapport 2016:06, Expertgruppen för biståndsanlys.

OECD DAC classifies as aid is also usually larger than the amount that constitutes aid in the Swedish national budget.

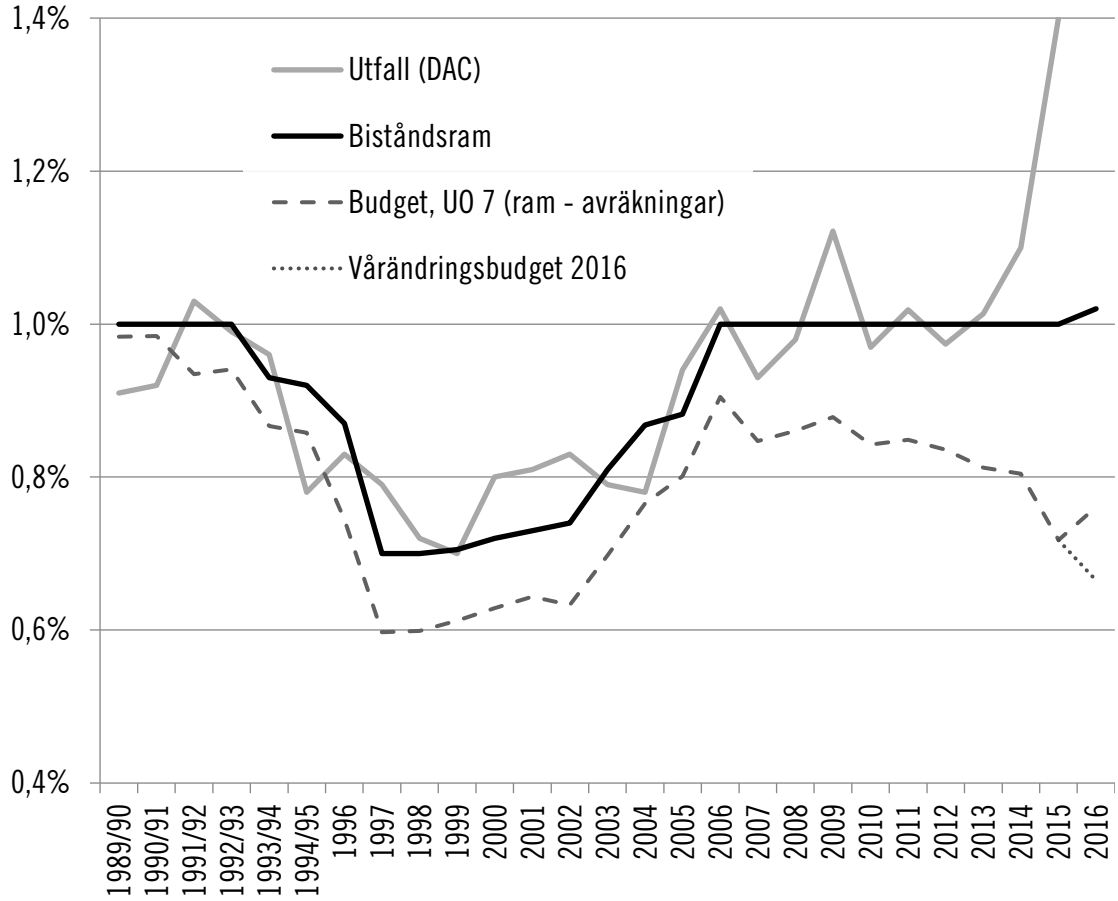
Figure 1 below shows how these different measures of Swedish aid as a percentage of GNI have evolved since 1990. The figure visualizes the impact aid deductions have had on the different aid measures. Although the outcome reported to DAC (the ODA) made a peak of 1.4 percent in 2015, the other aid measures remained roughly the same as before. In the same year, Sweden had the highest ODA-to-GNI ratio out of all donors,[41] even though the fraction of aid used for long-term development work and humanitarian aid was a lot lower, below 0.8 percent.

Sweden has agreed to undertake the necessary actions and policy changes in accordance with the Paris agenda. As an effort to fulfil the goal of minimized proliferation, a reform was adopted in 2007, when the government decided to concentrate Swedish aid to fewer recipient countries and sectors.[42] The phasing out of projects and reallocation of funding can potentially have caused aid volatility, with some projects having their aid cut while others saw an increase. To what extent this has been problematic depends on how well the Swedish authorities managed to announce the changes in advance. If all recipients were well informed and prepared for how funding would be affected, then this was another case of predictable volatility which, as discussed above, is not necessarily a problem. These arguments, however, remain speculative until more research is done. It is likely that different recipients have been affected by the reform in different ways.

[41] OECD DAC (2017). *Development aid rises again in 2016*, Paris: OECD.

[42] It is debatable to what extent this reform has led to decreased proliferation of Swedish aid. Hagen, R. J. (2015). *Concentration difficulties? An analysis of Swedish Aid Proliferation*, EBA Rapport 2015:03, Expertgruppen för biståndsanalys, concludes that the proliferation is still large, and was only mildly affected by the reform.

Figure 1. Swedish aid as a percentage of GNI, 1990-2016



Note: *The figure is compiled by the EBA, from OECD data, government budgets for 1989-2016, and a 2016 budget change.*[43]

Another source of volatility in Swedish foreign aid concerns uncertain finances in the national budget. The issue, which has been subject to much debate and policy reforms, is what fraction of the aid frame that can reasonably be used within the Swedish borders. Some budgeted aid money needs to be used for administrative costs and other expenditures which are considered necessary, even though they are not used for long-term aid work.

Costs for accepting refugees from poor countries who come to Sweden have been partially financed by aid since the early 1990's.[44] The fraction of aid used for immigration costs has varied over the years, and took a major upswing in 2015, due to the sudden large influx of

[43] Expertgruppen för biståndsanalys (2016). *op. cit*, p. 9.
[44] Expertgruppen för biståndsanalys (2014). *Svenskt statligt internationellt bistånd i Sverige: En översikt.* EBA Rapport 2014:05, Expertgruppen för biståndsanalys.

refugees.[45] The deductions had a large impact on aid projects and programs, many of which saw substantial cuts in their budgets.

Since forecasts of refugee influxes have been unreliable, the budget cuts in foreign project- and program aid have been difficult to predict. Hence, as more aid had been deducted for managing influxes of refugees in Sweden, there seems to be an increased risk of unpredictability and volatility.

The authorities have not been able to maintain predictability in their aid work during the past couple of years, according to the Swedish National Audit Office (RiR). In their 2016 report on uncertain financing and the predictability of aid, they express a concern for how finances have been reallocated during the budget year without being thoroughly declared. At the stage where the political goals are considered, and the budget is formally decided on, the amounts for each expenditure are still based on predictions and forecasts.

RiR believes that unpredictability of Swedish foreign aid could be reduced if Swedish government ministries and agencies had more clarity in their routines for budget changes. It is especially important that the government, the Ministry for Foreign Affairs, and the Swedish International Development Cooperation Agency (Sida) can handle uncertainty in funding, and make sure it does not damage long-run missions and development goals.

In the report, RiR express a concern that political priorities are more poorly motivated when reallocations of funds are made during the budget year. This concern arises due to the loss in thorough planning and concern for long-term policy goals that comes with sudden reallocation decisions. When studying budget changes from the past few years, RiR conclude that the government has failed to take all relevant aspects into consideration.

The report concludes that the audited government office and agency have low preparedness when it comes to handling uncertain funding and its consequences.[46] The Ministry for Foreign affairs claims that the deductions from the aid frame causes aid volatility. Since the aid frame is kept steady around 1% of GNI while the deductions fluctuate, the remaining aid budget becomes volatile.[47]

The request to increase the program-based aid has not been met by Sweden, for various reasons. In fact, Sweden has moved in the opposite direction and terminated partnerships that included program aid. Corruption is one of the reasons why Sweden no longer provides

[45] Knoll, A. and Sheriff, A. (2017). *Making Waves: Implications of the irregular migration and refugee situation on Official Development Assistance spending and practices in Europe.* EBA Rapport 2017:01, Expertgruppen för biståndsanalys.

[46] Riksrevisionen (2016). *Ett förutsägbart bistånd – trots en osäker finansiering*. RiR 2016:17, Riksrevisionen.

[47] Jonsson, E. (2017, September 18). Interview at the Ministry for Foreign Affairs (M, Svedberg, interviewer)8

general budget support to any of its partner countries.[48] The last two countries to receive Swedish budget support were Tanzania and Mozambique.[49]

Tanzania lost their budget support from Sweden in 2014 because of a suspected corruption affair, but in the following year, Sida decided that the government had taken enough action against corruption to again be provided with part of the planned budget support.[50] The budget support to Mozambique was withdrawn in 2016 after a corruption scandal.[51] These countries are still two of the largest recipients of Swedish foreign aid and the disbursements are now made through other channels, such as NGOs.

In general, corruption makes donors more eager to work with projects through the civil society instead of cooperating with the recipient governments. To ensure that the aid is used efficiently, transparency is both demanded and necessary.[52] As concluded in the previous section, fighting corruption at the expense of lower ownership could result in more aid volatility. Hence, the volatility of aid flows to Tanzania and Mozambique could in theory increase as a result of the decision to withdraw budget support.

Overall, it seems that at least part of the volatility in Swedish aid is a result of government policy. Corruption is highlighted as a core factor, but there are also several other political aspects influencing when and to where aid is provided. Disregarding human rights or supporting organisations with tendencies of violence are two examples.

Even though all discussed policies aim to make development work as effective as possible, some effectiveness might be lost due to volatility. The Swedish government is aware of the problems associated with aid volatility, and actions to decrease volatility have been discussed.[53] Deductions for refugee costs is considered to be the biggest problem for aid volatility. In that regard, it is difficult for the government to affect the stability of the aid budget, since they cannot control refugee influxes.

When it comes to program aid, such as budget support, Sweden is not the only bilateral donor which have withdrawn this form of aid disbursements in the later years.[54] Here, making sure aid money is not misused due to corruption is clearly prioritized above the

[48] It is however important to note that, contrary to the many expectations on the high fiduciary risks of budget support, there is a lack of evidence supporting that it increases corruption.
[49] Söderberg, S. (2017, September 18). op. cit.
[50] Swedish International Development Agency. (2015, March 15). Budgetstöd till Tanzania om 125 miljoner kronor. Retrieved from Sida.se: https://www.sida.se/Svenska/aktuellt-och-press/nyheter/2015/mars-2015/budgetstod-till-tanzania/
[51] Swedish International Development Agency. (2016, November 5). Sverige finansierar revision i Moçambique efter frysning av biståndet. Retrieved from Sida.se: https://www.sida.se/Svenska/aktuellt-och-press/nyheter/2016/november-2016/sverige-finansierar-revision-i-mocambique-efter-frysning-av-bistandet/
[52] Bigsten, A. and Tengstam, S. (2015). op.cit.
[53] Jonsson, E. (2017, September 18). op. cit.
[54] Söderberg, S. (2017, September 18). op. cit

request to shift from project to program aid. If the government is unwilling to change their aid policies in this regard, they need to find and affect some other source of volatility. Unless of course, a stabilization of refugee influxes makes the deductions more predictable and stable, causing a reduction in volatility of budgeted aid.

1.4 How is aid volatility measured in the literature?

The choice of method for estimating aid volatility reflects what aspect of the volatility issue the author is focusing on. Hudson, for example, emphasizes the difference between estimating volatilities of total aid to a country and aggregating volatility estimates from different aid sectors, holding the heterogeneity between sectors as his central argument.[55] Kharas instead uses insights from finance theory, treating aid as a portfolio and deriving a formula based on the Capital Assets Pricing Model (CAPM) to create a measure for the deadweight loss associated with aid volatility.

Moreover, since aid volatility is typically estimated from time series data, different types of autoregressive models are commonly used. One of them is the ARCH model used by Desai and Kharas.[56] Another is an asymmetric VAR-model used by Hudson[57]. Other methods include sample moments, and General Equilibrium models. Not all studies, however, use such complex methods.

The coefficient of variation (CV) is time-invariant measure of volatility which is easily estimated. It is equal to the standard deviation of a given aid flow divided by the mean of the same aid flow, and can also be referred to as the relative standard deviation (RSD). Hudson, Kharas, and several other researchers proceed from some version of the CV.

A simple estimate like the CV cannot capture the complexity of aid volatility, unless it is used in combination with other methods. It does, however, provide an easy way of comparing volatilities of different aid flows as well as impact on other variables.

Aid flows can be defined with different measures and with different countries in question. Some studies focus on aid volatility from the donor side, i.e. 'how volatile is the total aid flow from the same donor', while others look at the volatilities of aid inflows to recipient countries. The latter is more relevant when studying the impact of aid volatility on development outcomes, such as the macroeconomic performance in poor countries. When instead discussing aid coordination and how effective donors are in promoting development, the outflow volatilities are often more informative.

Regarding aid measures, the choice normally stands between official development assistance (ODA) and country programmable aid (CPA). The first is the most common

[55] Hudson, J. (2015). op. cit.
[56] Desai, R.M. and Kharas, H. (2010). *The Determinants of Aid Volatility*, Working paper 42, Global Economy & Development, The Brookings Institute.
[57] Hudson, J. (2015). op. cit.

definition of aid, defined by the DAC. ODA includes aid which is provided by official agencies with the main objective of promoting economic development and welfare in developing countries (defined by the same committee), and consists of at least a 25% grant.[58] CPA is a narrower definition, and includes only the portion of aid of which partner countries can have a significant say, and which can be programmed for individual countries and regions by its donor. Humanitarian aid, loans and interest payments, are not included in this measure.

It is not evident which of these aid measures is expected to be more volatile than the other. On the one hand, ODA has a humanitarian aid as a component. Seeing as humanitarian aid is a response to external shocks such as natural disasters, these aid flows are naturally volatile. From this argument, one would expect ODA flows to fluctuate more than CPA flows.

However, since targets for keeping aid steady relative to GNI are appointed to ODA, there is also a force keeping ODA flows steady (assuming GNI does not fluctuate very much). With the spending target of keeping ODA at a certain (relative) level, it is therefore thinkable that aid which needs to be used for humanitarian measures is discounted from this amount. In that case, CPA could be the more volatile measure, affected by fluctuations in humanitarian aid.

[58] Loans can for example be included (not for military purposes, however), but only to a certain extent.

2. Method and data

The straightforwardness and simplicity of the CV makes it a suitable choice of volatility measure for this report and its limited scope. Swedish aid volatility is estimated with the CV for each of the six selected recipient countries, and as an average volatility for all recipients combined. These represent all recipients of Swedish aid that are included in DAC 2a: Total Net ODA data, or in the corresponding dataset for CPA flows. The time frame is limited to the years 2000-2015.

Aid is measured using both net ODA[59] and CPA, allowing results to be compared between the two. Both datasets were extracted from the OECD database.[60] 'Total recipients' are defined as all recipient countries included in the datasets labeled 'Development countries, total'.

Sweden has been involved in development work in more than 100 countries over the years. A complete mapping of all volatilities would therefore be far too extensive for this report. Furthermore, it would be difficult to compile the results of so many estimated values in a way that makes it easily reviewable. Including all recipient countries in the analysis would also complicate the comparison of volatilities.

The analysis will instead focus on a selected sample of six long-term partner countries, four of which are located in Africa. The selected countries are Cambodia, Palestine, Mozambique, Rwanda, Tanzania and Uganda. Most of the partner countries to which Sweden provides development assistance with the primary aims of reducing poverty and creating long-term economic development are African countries. This motivates the choice to mainly include partner countries in Africa in this study. Furthermore, results from this report complements the insights from previous EBA studies on Swedish development assistance in Cambodia, Tanzania and Uganda.

The sample is complemented with two non-African countries; Cambodia and Palestine. Development work in Cambodia resembles the assistance to African countries, focusing on enhancing democracy, human rights, education and sustainable development.[61] As a partner country, Palestine has a somewhat different profile than the rest of the sample. Democracy and human rights are ambitions in focus, but due to many years of conflict and disturbances, the aid planning meets other requirements.[62] It is thereby interesting to explore whether the divergent conditions in Palestine produces a different volatility level than the rest of the sample.

[59] Net ODA is simply gross ODA minus repayments of loans.
[60] The OECD database is available at http://stats.oecd.org.
[61] Swedish International Development Agency. (2017, November 27). Vårt arbete i Kambodja. Retrieved from Sida.se: https://www.sida.se/Svenska/Har-arbetar-vi/Asien/Kambodja/Vart-arbete-i-Kambodja/
[62] Swedish International Development Agency. (2014, December 2). Vårt arbete i Palestina. Retrieved from Sida.se: https://www.sida.se/Svenska/Har-arbetar-vi/Asien/palestina/vart-arbete-i-palestina/.

It should be noted that the sample of recipient countries studied in this report was not randomly selected and is too small to generate statistical inference. There may be substantial heterogeneity in volatilities (consistent with earlier literature), depending on which countries one chooses to look at. Hence, a different choice of countries would not be unlikely to present different results. The results can only serve to give an insight into Swedish aid volatility for these few partner countries and do not claim to give a complete view of how volatile aid from Sweden is in general.

Apart from providing a simple measure of volatility, the main strength of the CV is that it scales the size of aid flows and makes them comparable. Volatilities for countries which receive large aid flows are thereby comparable to those with small aid flows. The method provides a straight-forward, comprehensible and efficient way to study volatility in Swedish aid while also capturing features from the previous literature. The CV method is therefore advantageous on the basis of the relatively limited time frame of the present study. It is also beneficial as it allows readers with modest knowledge of statistics to interpret the results.

One of the shortcomings of the CV as a volatility measure is that it does not remove the trend of the aid flows. This means that CV:s of countries that have seen an upward or downward trend in aid inflows during the studied period will be biased. For this reason, an additional analysis using the Hodrick-Prescott filter to detrend the data is presented in Appendix 3.

3. Estimated Swedish aid volatilities

The volatilities from four types of aid flows are estimated for each of the six selected partner countries. Apart from distinguishing between net ODA and CPA, a comparison is also done between Swedish aid flows and total international aid flows. Hence, each partner country in the sample has volatility estimates for Swedish net ODA, total net ODA, Swedish CPA, and total CPA.

The Coefficient of Variation (CV) serves as the volatility measure. Computed as the standard deviation of aid flows over the mean aid level, higher values represent more volatile aid and lower values representing less volatile aid. While the CV can take values from zero (under constant aid flows, unlikely) to approaching infinity (when the mean is close to zero, also unlikely), all resulting estimates presented below have a value between 0 and 1.

The resulting CV values and the means and standard deviations used to calculate them are presented in Table 1 and 2. The mean values and standard deviations are calculated from the absolute levels of aid. Hence, the mean value represents the average aid level during the period 2000-2015 in a recipient country (expressed in million US Dollars at constant 2015 prices). The CV is equal to the standard deviation divided by the mean.

Table 1 shows the results from the data on (net) ODA flows from Sweden, while Table 2 shows the same results using data on CPA flows.

The last column in each table shows the corresponding CV:s from aggregate aid from *all* donors to the same recipients. This column is used as a point of comparison, to establish whether the Swedish aid volatilities are high or low in relation to the total donor volatilities. As previously stated, the CV is device independent, and thereby allows volatilities to be compared between aid flows that are different in size.

Table 1. Results for Swedish net ODA 2000-2015

	Swedish aid (net ODA)			Total aid (net ODA)
	CV	Mean (Million USD)	SD	CV
Total recipients	0.2839933	2732.656	776.056	0.2301797
Cambodia	0.2402811	23.00937	5.528717	0.1110301
Mozambique	0.1783702	85.64812	15.27707	0.2473252
Palestine	0.1775592	49.39375	8.770314	0.3073174
Rwanda	0.35754	19.975	7.141862	0.3259392
Tanzania	0.1816589	91.805	16.67719	0.2318169
Tanzania -2014	0.1203091	94.93133	11.4211	0.240212
Uganda	0.2496082	42.26937	10.55078	0.1457373

Note: *The columns display the coefficients of variation (CV), the standard deviation (sd) and the mean of net Official Development Assistance (ODA) from OECD data. The data covers all aid recipients in the years 2000-2015. Note that 'Total recipients' refers to all recipients of net ODA in the OECD database. In the row 'Tanzania -2014', observations from the year 2014 are excluded from the measures.*

Table 2. Results for Swedish CPA 2000-2015

	Swedish aid (CPA)			Total aid (CPA)
	CV	Mean (Million USD)	SD	CV
Total recipients	0.1046794	1161.281	121.5622	0.3097873
Cambodia	0.2024218	20.3872	4.126813	0.2490202
Mozambique	0.1840242	82.97529	15.26946	0.3241896
Palestine	0.1655598	30.72696	5.087151	0.3725467
Rwanda	0.4032146	18.2721	7.367576	0.455829
Tanzania	0.1908748	86.68748	16.54646	0.3831044
Tanzania -2014	0.1178494	89.93686	10.59901	0.3964729
Uganda	0.2382987	34.13781	8.134997	0.2602737

Note: *The columns display the coefficients of variation (CV), the standard deviation (sd) and the mean, of net Country Programmable Aid (CPA) from OECD data. The data covers all aid recipients in the years 2000-2015. Note that 'Total recipients' refers to all recipients of CPA in the OECD database. In the row 'Tanzania -2014', observations from the year 2014 are excluded from the measures.*

The relationship between the values for different aid flows reveal several things about the concerned recipient country. The first indication is how similar the mean CPA to the country is to the mean ODA (revealed by comparing the 'mean' columns in Table 1 and 2). For some countries CPA flows correspond well to the ODA flows, indicating that they have received little or no humanitarian aid and have not made substantial interest payments. These are the only components separating ODA from CPA. None of the five countries which have long-term development partnerships with Sweden have any major differences between their Swedish ODA and CPA mean levels.

Comparing the two tables altogether, the CV values for Sweden in one table is not clearly higher than the other. Hence, there is no clear tendency for which of the aid measures, ODA or CPA, is the most volatile. Looking at all aid (last column) however, there is a clear tendency for CPA volatilities to be larger than ODA volatilities. A comparison of the last column in Table 1 to the last column in Table 2 reveals that Table 2 has a larger CV value for each individual recipient country, as well as in the 'Total recipient'-row.

For the Swedish aid flows, there is less diffusion among the ODA volatility estimates than among the CPA volatility estimates. The CV values for ODA vary between 0.177 and 0.283, while the corresponding values for CPA vary between 0.104 and 0.403. Thus, CPA has both a smaller minimum CV and a larger maximum CV than ODA to the selected partner countries.

When it comes to volatilities, the CV values reveal interesting differences both between the two tables and between partner countries. In both tables, Mozambique, Palestine and Tanzania[63] show low CV values from Swedish aid, i.e. relatively low aid volatilities, compared to the other three countries. Cambodia, Uganda, and Rwanda present higher values, the first two still close to the other countries while Rwanda has a much higher estimated volatility. The results for each partner country are discussed in more detail below.

Palestine

Palestine stands out among the other five countries with regard to the difference between ODA and CPA mean values. It has a mean Swedish ODA of 49.4 while the mean Swedish CPA is only 30.7. Palestine is a country in conflict, which requires efforts for promoting peace and safety, as well as humanitarian aid.[64] This should explain the difference between the ODA and CPA mean values. The estimated volatilities from Swedish aid to Palestine, however, are quite similar between ODA and CPA. The CV is 0.178 in the ODA table, and 0.166 in the CPA table. Looking at the column for total donor aid, this difference is larger; the CV is 0.307 for ODA and 0.373 for CPA. The volatility of Swedish aid to Palestine is hence much lower than the volatility of Palestine's total aid inflows. The difference is especially large for the CPA data, where the 'total donor'-volatility is more than twice as large as the Swedish volatility.

Tanzania

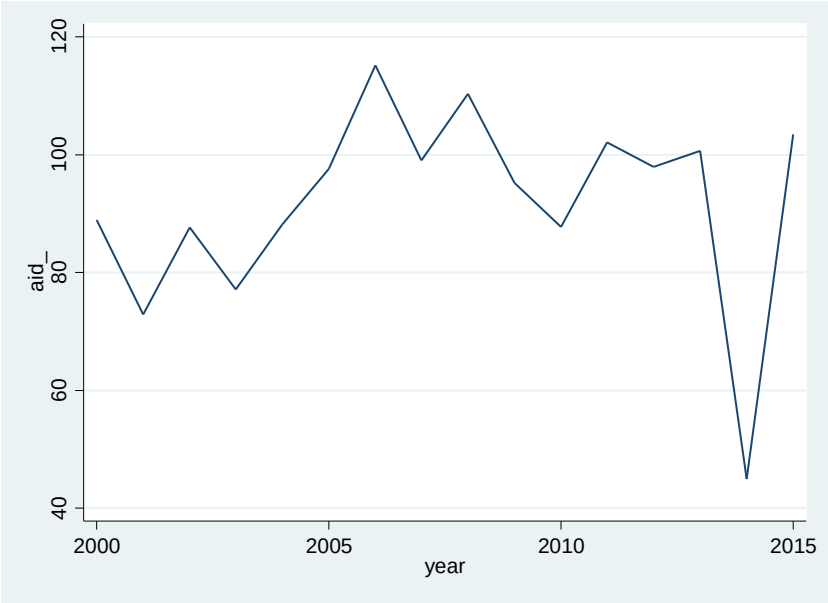
The Tanzania estimates are largely affected by a shortfall in both ODA and CPA in 2014. Consequently, the 2014-observations act as outliers. When removing the 2014 aid disbursements from the Tanzania time series data, the CV is dramatically reduced due to a

[63] Tanzanian volatilities have been estimated both with and without the 2014 observation, which is considered an outlier in the ODA and in the CPA data. The reason behind the 2014 shortfall are discussed further down, along with the overall results for Tanzania.

[64] Swedish International Development Cooperation Agency (Sida). (2014, November 5). *Ny strategi och utökat bistånd till Palestina*. Retrieved from Sida.se: https://www.sida.se/ Svenska/aktuellt-och - press/nyheter/2014/November-2014/ny-strategi-och-utokat-bistand-till-palestina/.

lower standard deviation and higher mean. Tanzania then shows the by far lowest volatility estimates for both ODA and CPA, with a CV of 0.120 and 0.118, respectively. This is likely a result of the decision to withhold budget support to Tanzania in 2014, due to suspected corruption. The country regained some of the budget support in 2015, and reached their 'normal' level of ODA again. The shortfall in aid is clearly visible in Figure 2 below.
Withholding budget support largely contributed to the volatility of Swedish aid to Tanzania. Removing the observations for 2014 from the "total aid" columns does not severely affect the CV:s for either ODA or CPA. The Swedish volatilities of Tanzanian aid are consistently smaller than the aid volatilities from 'all donors', stretching from about one fourth of the total aid CV (Tanzania -2014, CPA), to about three fourths (Tanzania, ODA). Thus, in the case of Tanzania, Sweden again presents low aid volatility.

Figure 2. Net ODA from Sweden to Tanzania 2000-2015



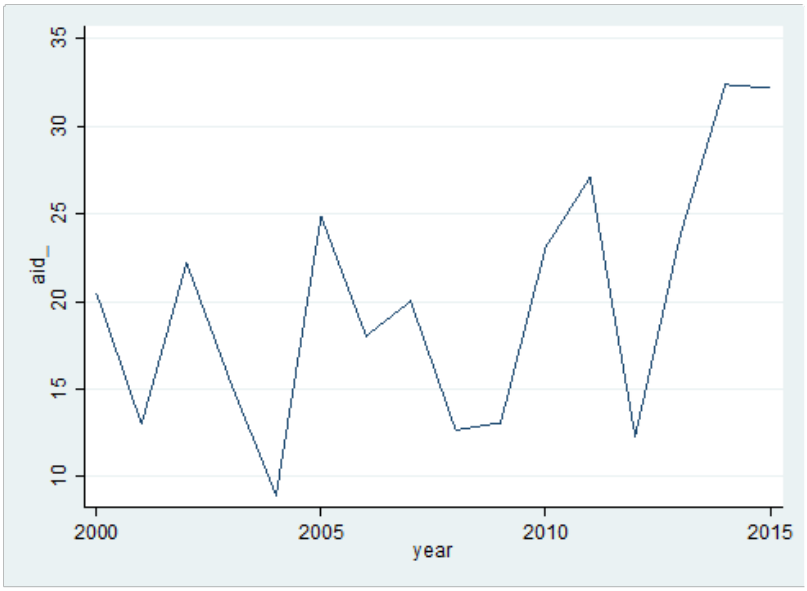
Note: *Corresponding CPA figure has an almost identical pattern only with slightly lower values.*

Rwanda

Rwanda stands for the highest volatility estimates in both tables and for both Swedish and total aid inflows. For Sweden, the CV is 0.358 (ODA) and 0.403 (CPA). Regarding ODA, Sweden's aid volatility is larger than that from all donors (0.326), while the CPA CV is smaller than the CPA volatility from all donors (0.456). The Swedish aid volatility is hence more or less in line with the volatility from all donors, in the Rwanda case.

The CV:s from both Swedish and total donor-aid are very large compared to the other studied countries. While the standard deviations are not very large in absolute terms, the high CV values reveal that they are very large in relation to the means. The high estimated volatility is illustrated in Figure 3 below.

Figure 3. Net ODA from Sweden to Rwanda 2000-2015



Note: *corresponding CPA figure has an almost identical pattern only with slightly lower values.*

Figure 3 displays fluctuations in ODA from Sweden for the period 2000-2016. Looking at the data, it is evident that both Swedish ODA and CPA to Rwanda have changed rapidly over the studied 16-year period. The ODA varies between less than 10 million and more than 30 million USD.

Swedish aid to Rwanda has evidently experienced several shortfalls during the studied time period. This can in part be explained by the political motives discussed in beginning of this paper. Sweden decided, for example, to withhold budget support to Rwanda in 2008 after a UN expert group reported that the Rwandan government was providing support to Tutsi rebels in the neighbouring Democratic Republic of Congo.[65] Inadequate accounting by the Rwandan government was however also reported as a contributing factor to the decision to withhold support[66]. Almost 60 percent - 80 out of 140 million SEK – of total Swedish aid to Rwanda was withheld in 2008.[67]

Support to Rwanda was withheld once again in 2012, when Sida and the Ministry of Foreign Affairs made the judgement that the uncertain regional conflict situation created conditions in which Rwanda was no longer feasible to receive general budget support.[68] General or sectoral budget support to Rwanda is, as stated in the 2010 strategy for development

[65] See for example: Klesty, V., & Stevenson, R. (2008, December 17). *Rwanda dismisses aid suspensions over UN report*. Retrieved from reuters.com: https://uk.reuters.com/article/idUKLH482423

[66] TT (2008, 17 december). Bistånd till Rwanda dras in. Available at: https://www.aftonbladet.se/nyheter/article11596361.ab

[67] Radio Sweden (2008, 17 December). Sverige fryser budgetstödet till Rwanda. Available at: http://sverigesradio.se/sida/artikel.aspx?programid=83&artikel=2515821

[68] The Government Offices (2010). Samarbetsstrategi för utvecklingssamarbetet med Rwanda, Stockholm: Regeringskansliet

cooperation with Rwanda, conditional on the Rwandan government's actions and policies. Rwanda may accordingly be eligible to receive more aid when their government acts to deepen the democratization process, improves respect for human rights, and promotes peace in the region.[69]

Rwanda is a small country which usually receives smaller amounts of aid than the other countries in the sample, except Cambodia. The amount from all donors to Rwanda is generally smaller than to larger recipient countries, in absolute terms. However, since Swedish aid to Rwanda is highly volatile, the ranking of how much Swedish aid the six sample countries receive changes from year to year. During the years with upsurges of Swedish aid, Rwanda ranks high albeit being a small country.[70]

Whether small countries generally experience more volatile aid inflows is an interesting question that is unfortunately difficult to answer without more information.

Cambodia

The results for Cambodia are rather similar for Swedish ODA (0.240) and CPA (0.202), and also has a close value for 'total donor'-CPA (0.250). 'Total donor'-ODA, however, has a much lower CV of only 0.111. Whether Sweden has a relatively high or low volatility therefore depends on the aid measure one chooses to look at. For ODA, the Swedish volatility is high, in fact more than twice as high as the CV for all donors. Using CPA, the CV from Sweden is instead relatively low.

Uganda

Likewise, Uganda has three similar CV values and one odd value. Again, it is the 'total donor'-CV in the ODA table that differs from the others with a much lower value (0.146). The remaining three have CV values in the range between 0.238 and 0.260. The aid from all donors is more volatile for CPA than for ODA, which was the expected result, while the Swedish estimated volatilities are similar when comparing ODA and CPA.

Mozambique

The estimated ODA and CPA volatilities of Swedish aid to Mozambique are both considerably low. Volatility of combined aid flows from all donors are estimated higher, especially for CPA flows. The CV of total CPA to Mozambique is 0.324. However, only Cambodia and Uganda present lower corresponding CV estimates. In general, aid to Mozambique appears to relatively stable compared to the other sample countries.

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[69] The Government Offices (2010). Strategi för svenskt stöd till Stora sjöregionen, Stockholm: Regeringskansliet; The Government Offices (2010). Samarbetsstrategi för utvecklingssamarbetet med Rwanda, Stockholm: Regeringskansliet

[70] OECD DAC (2017). Development aid rises again in 2016, Paris: OECD. Retrieved from oecd.org: http://www.oecd.org/dac/development-aid-rises-again-in-2016-but-flows-to-poorest-countries-dip.htm

Total recipients

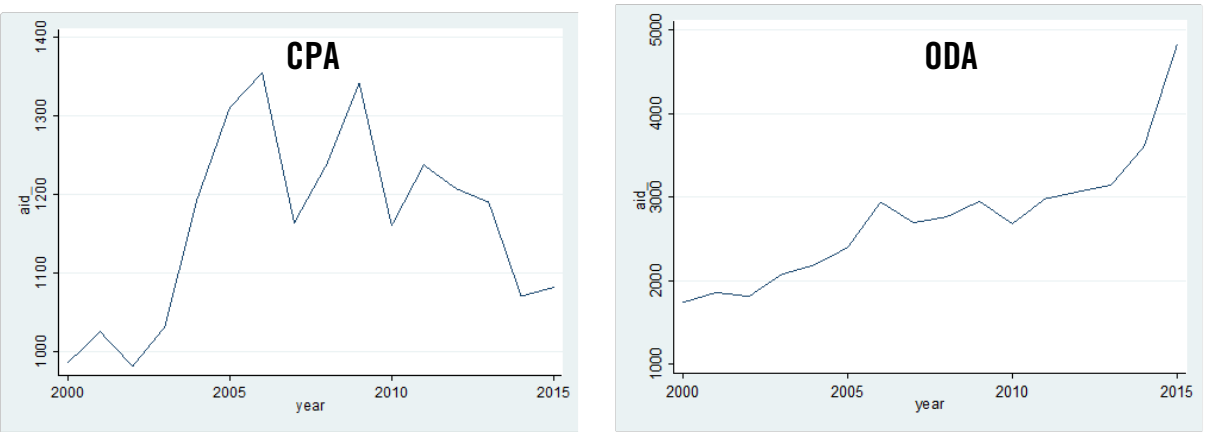
Apart from the 'total aid'-column as point of comparison, it is interesting to look at the 'Total recipients' row in Table 1 and Table 2, referring to all recipient countries in the OECD dataset over Swedish (and total donor) aid flows, and not just the countries in the small selected sample.

For ODA data (Table 1), the Swedish CV for 'Total recipients' is high, in fact the second highest in the table (the CV is 0.284, only Rwanda being higher with 0.357). This is an indication that the selected sample have relatively small volatilities in ODA, compared to the rest of the Swedish aid recipients. Whether the CV for 'Total recipients' is driven by a few outliers with high volatilities or that most other countries have more volatile aid inflows cannot be stated without more information.

The CPA data (Table 2) tells a different story. In this table, 'Total recipients' has a lower Swedish CV (0.105) than all other countries in the sample. Furthermore, this value is only about one third of the CV for all donors (0.310). From this point of view, Sweden has very low general aid volatility. Many researchers find CPA to be a more appropriate volatility measure from the perspective of aid volatility being a problem (See Appendix 1). From this argument, a low estimated volatility of total Swedish CPA is a good sign. The reason behind the large difference in CV of total aid between the two aid measures (for Sweden) is difficult to assess.

From the point of view that the policy of keeping aid steady (relative to GNI) is directed at ODA, and that observed CPA should tend to drop when the need for humanitarian aid hits a sudden peak, CPA is expected to be *more* volatile than ODA. Instead the results show a total ODA Swedish CV value almost three times as large as that of the CPA. Then again, the high estimated volatility of total ODA could be the result of some outlier which does not appear in the CPA data. The trends of the aid flows could also have an impact. From the data it is evident that Swedish ODA has an upward trend, whereas the CPA shows a lack of trend. This is visualized in Figure 4 below. The effect of trends is further investigated in Appendix 3.

Figure 4. Net ODA and CPA from Sweden to "total recipients" 2000-2015



4. Conclusion

For the six long-term Swedish partner countries studied in this report, there are mixed results regarding the level of aid volatility, although most estimates point towards Swedish aid volatility being relatively low.

The one country in the sample that stood out with its high volatility estimates compared to the others was Rwanda. This volatility was partly a result of fluctuations in general budget support, which constitutes a large share of Rwanda's total aid from Sweden. Eligibility to budget support has depended on, inter alia, how the recipient government has worked to increase democracy and fulfil human rights. An explanation for the variations in aid from year to year may thereby be that the Rwandan government has failed to meet such conditions in some years, and succeeded in other years.

The Rwandan aid volatility might also reflect the fact that Rwanda is a small country with a low mean value of Swedish aid flows. A given fluctuation in aid, in absolute terms, generates larger standard deviations in relative terms to countries receiving less aid than to those who receive more. However, Cambodia, which had mean CPA and ODA levels not far from Rwanda's, does not have very large estimated volatilities, especially not for 'total donor'-CPA. Furthermore, volatilities of aid to Rwanda are large for both Swedish flows and flows from all donors. Compared to all donor-aid, Sweden does not have a high volatility.

Tanzania has a long history of Swedish development assistance and is still in the top of the list of countries receiving the most aid from Sweden. When neglecting the large 2014 shortfall in Swedish aid due to withdrawn budget support, Swedish aid to Tanzania has the lowest estimated volatilities (together with Swedish CPA to total recipients). The sharp downturn of aid in 2014 however pinpoints the problematic trade-off between punishing corruption and having low aid volatility with a high level of ownership. Even if recipient corruption likely makes aid less effective, working against it can have a similar effect, though the increase in aid volatility. After all, the 2014 outlier alone has a large impact on the estimated volatilities.

The chosen countries appear to have lower aid volatilities than Swedish partner countries in general. For the ODA data, the estimated volatility of the total of recipients of Swedish aid was larger than five out of six countries in the sample. The most unexpected finding was that total CPA to all recipients in the data had a much lower estimated volatility than the comparable ODA estimate. This goes against earlier empirical findings in the field, for example the conclusion by Kharas (2008) that CPA is more volatile than ODA.

Overall, the estimates did not provide a clear view of which aid measure is most volatile. Regarding Swedish aid, neither the ODA- nor CPA-measure is consistently more volatile than the other. For aid from total donors, however, the estimated volatilities are larger for CPA flows than for ODA flows. Whether this is partly a consequence of volatile

humanitarian aid being deducted from ODA which is kept steady due to the one-percent target is an interesting hypothesis which urges more attention and research.

Another question which has not yet been fully answered in the research is how the size of the recipient country and its incoming aid flows affects the volatility magnitude. Even though one would expect larger aid levels to be associated with higher volatilities and vice versa, Rwanda presents the opposite case. Albeit being a small economy receiving smaller absolute amounts of aid than larger recipient countries, aid flows to Rwanda are clearly highly volatile. Perhaps a potential explanation could involve aid-dependency.

5. References

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5.1 Data Sources

OECD data on Official Development Assistance (ODA): https://data.oecd.org/oda/net-oda.htm
OECD data on Country Programmable Aid (CPA): https://data.oecd.org/oda/country-programmable-aid-cpa.htm

Appendix 1

More academic literature on aid volatility and cyclicality

ALES BULÍŘ and JAVIER HAMANN

Aid Volatility: An Empirical Assessment (2003) *IMF Staff Papers*, 50(1), pp.64-89.

Volatility of Development Aid: From the Frying Pan into the Fire? *World Development*, (2008) 36(10), pp.2048-2066

An article often cited in the literature on aid volatility was written by Bulíř and Hamann in 2003. They were among the first to argue that estimating uncertainty and volatility in aid flows is highly relevant, since business fluctuations can create welfare costs. Earlier estimates of these costs suggest that they are larger in poor countries than in industrialized countries. The estimated volatilities show that, for most recipient countries, aid flows are more volatile than domestic revenue. The authors further find suggestive evidence that aid is procyclical.

In 2008, the same authors wrote a second article, in which they expand on their data and measures for aid volatility and unpredictability. Their previous conclusion that aid is more volatile than revenue still holds, as does the finding of aid being procyclical. This paper finds stronger evidence that aid has failed to work as a stabilizing force in poor countries. If aid was countercyclical, it could have acted as an insurance mechanism by compensating for negative shocks to income. Such mechanisms are not empirically evident from the results, and Bulíř and Hamann once more conclude that aid is most often both unpredictable and highly volatile.

PAUL MOSLEY and JOHN HUDSON

The macroeconomic impact of aid volatility. (2008) *Economics Letters*, 99(3), pp. 486-489.

Aid Volatility, Policy and Development. (2008) *World Development*, 36(10), pp. 2082-2102.

Hudson and Mosley wrote two papers in 2008, both focusing on aid volatility and its impact on aid effectiveness. In the second paper, they build on Bulíř and Hamann's 2003 analysis, claiming that the choice of data influenced the results in a resolving way. Both papers by Hudson and Mosley distinguish between positive and negative aid volatility. Positive volatility (positive aid shocks) may decrease aid effectiveness, if the receiving economy does not have enough capacity to absorb the aid upsurge in an efficient way. Sudden declines in aid flows represent negative aid volatility, which also may decrease aid effectiveness, only through different mechanisms. Aid shortfalls make it difficult, especially for aid-dependent governments, to plan national budgets and make long-term investments. Negative aid volatility may therefore lead to projects being terminated due to lack of funding. It may also cause governments in the aid receiving countries to withdraw from

making important investments or engaging in long-term projects. Such cautious behavior could be harmful to the economic development in these countries. The authors conclude that both negative and positive volatility reduces the effectiveness of aid for enhancing economic growth.

JOHN HUDSON

Consequences of Aid Volatility for Macroeconomic Management and Aid Effectiveness, (*2015) World Development*, 69, pp.62-74.

John Hudson's paper is a critical review over the former literature on aid volatility and its consequences. His main contribution is the focus on volatility of aid to specific sectors within a recipient country, instead of measuring volatility from its total aid flows. He argues that simply looking at overall aid to a country does not give an accurate view of the volatility issues. Some aid sectors may experience positive volatility while others experience negative volatility. When aggregated, the sector volatilities could thereby cancel each other out, creating an illusion that total aid is more stable than it actually is. Heterogeneity and spillover-effects between aid sectors may skew the estimated aid volatility and its impacts, unless they are taken into account in the choice of data and estimation method. For this reason, Hudson believes that analyses of total aid to a country tend to underestimate its volatility. He further argues that the consequences of aid volatility that matter are the impacts it has on distinct goals, which are better accounted for when measuring aid volatility on the sector level instead of on the country level. Indeed, Hudson finds significant variation in aid volatility between sectors - results which support his claims.

ARNE BIGSTEN and SVEN TENGSTAM

International Coordination and the Effectiveness of Aid. (2015) *World Development*, 69, pp.75-85.

Swedish economists Arne Bigsten and Sven Tengstam claim in their 2015 paper that (at least some) donors do not want to harmonize their efforts in developing countries. The authors believe that unwillingness to lose political control over aid flows are keeping donors from coordinating to a greater degree. If this unwillingness is worth more than the potential gains of reduced transaction costs and increased effectiveness for reducing poverty, then donors will not wish to coordinate more. This is an implication which could help explain why not much has happened on the coordination front when it comes to implementing the Paris Agenda.

The authors also argue that political influence over aid transfers is more important to larger donor countries than to smaller ones. They conclude that even though aid coordination would increase effectiveness of international development work – an advantage for both donors and recipients – there are considerable political constraints from the donors' perspective.

The paper also measures the effects of aid coordination among donors on aid effectiveness., aiming to quantify how much a given improvement in donor coordination would increase the effectiveness of the appointed aid flows. In addition, the authors estimate the cost of missing the harmonization target in the Paris Declaration. This method allows them to measure how far off donor countries are from that and other targets specified in the agenda.

Another question is whether it is possible to have program-based aid that is not at all harmed by corruption. Bigsten and Tengstam argue that this is not realistic. If they are right, the choice for donors would stand between accepting some level of corruption while continuing to strive for more program-based aid, or to only engage in project aid.

Both Hudson[71] and Bigsten and Tengstam are in the list of 10 papers overviewed by Addison and Tarp in their paper "Aid Policy and Macroeconomic Management of Aid"[72], where aid volatility is pointed out as a factor with an important impact on several economic outcomes.

HOMI KHARAS

Measuring the cost of aid volatility, (2008) Working paper 3, Wolfensohn Center for Development, The Brookings Institute.

In his 2008 paper, Homi Kharas estimated a cost trend of aid volatility, which peaked around the year 2000, and has been stable or fallen slightly since then. As many other researchers, he argues that CPA is a more appropriate aid measure than ODA when estimating and problematizing aid volatility. His results indicate that much more could be done by donors to decrease aid volatility and its cost. Since recipient countries have less power over the aid they receive – a situation that has persisted even though the Paris Declaration serves as an agreement to change these conditions – their prospects for reducing volatility are much more restricted. Furthermore, aid commitments are negotiated between donors and recipients, and hence affected by the recipients' relative (lower) capabilities to bargain.

The most important contribution by Kharas is his calculation of the deadweight loss associated with aid volatility. He finds these losses in efficiency to be substantial from many donors' aid flows, and urges all donors to try and reduce them.

[71] Hudson, J. (2015). op. cit.
[72] Addison, T. and Tarp, F. (2015). Op. cit.

LISA CHAUVET and PATRICK GUILLAUMONT

Aid, volatility, and growth again: When aid volatility matters and when it does not. (2009) *Review of Development Economics*, 13, pp.452-463.

Chauvet and Guillaumont have argued that aid should have a cushioning effect on negative impacts from external shocks. If so, then aid would be more effective in recipient countries that are especially vulnerable to such shocks. The solution to the volatility problem needs to take this complexity into account, and avoid reducing the volatility in aid that is not necessarily bad for the receiving economy.

The authors further argue that the important problem is not volatility, but rather the unpredictability of aid, as well as its procyclicality. They explore how the time profile of aid flows impacts their effectiveness. Unlike most other papers, Chauvet and Guillaumont do not find aid to be consistently procyclical, but rather countercyclical for at least a few countries.

An alternative concept to procyclicality of aid is the "stabilizing impact of aid", which the authors argue to be more suitable for assessing important macroeconomic consequences of aid volatility. They estimate volatility both with respect to exports and with respect to income, pointing out that volatility in exports is likely more exogenous than volatility in income or fiscal revenue. In both cases they find that aid tends to mitigate the negative economic consequences from exogenous shocks, i.e. that aid seems to be stabilizing. This finding serves as an explanation for why aid has appeared to be more effective in countries that are economically vulnerable.

When considering the effect of aid on income volatility, the authors find that aid is making growth more stable, while its volatility reduces this effect. Finally, they use growth regressions to show that the higher effectiveness of aid in vulnerable countries is to a large extent due to its stabilizing effect.

ERA DABLA-NORRIS, CAMELIA MINOIU and LUIS FELIPE ZANNA

Business Cycle Fluctuations, Large Macroeconomic Shocks, and Development Aid, (2015) *World Development*, 69, pp.44-61.

This is another paper on the cyclicality of aid, concluding that the world's total bilateral aid is procyclical. Results for specific countries are, however, varying. Dabla-Norris et al find different levels of procyclicality for different aid recipients. Low-income countries receive more procyclical aid than middle-income countries do. There is also plenty of variation depending on which donors and receivers of aid one chooses to look at. Aid is countercyclical for a few donor countries in their sample.

RICHARD A. NIELSEN, MICHAEL G. FINDLEY, ZACHARY S. DAVIS, TARA CANDLAND and DANIEL L. NIELSON

Foreign Aid Shocks as a Cause of Violent Armed Conflict. (2011) *American Journal of Political Science*, 55(2), pp.219-232.

Nielsen et al examine the link between shocks in aid flows and armed conflict, finding that sharp decreases in aid revenues affect the power balance in the recipient country. Aid shocks can alter the relative bargaining strengths of the government and rebels. This can cause violence, at worst resulting in armed conflict. Results from the study are significant and show that negative aid shocks increase the probability of armed conflict erupting. Nielsen also argues that high volatility in aid can undermine democratic institutions, which Kharas (2008) agrees to be an important indirect negative effect from aid volatility.

Appendix 2

Original tables exported from Stata

Aid Volatility netODA

	sd	mean	cv
Cambodia	5.528717	23.00937	.2402811
Developing Countries, T~l	776.056	2732.656	.2839933
Mozambique	15.27707	85.64812	.1783702
Rwanda	7.141862	19.975	.35754
Tanzania	16.67719	91.805	.1816589
Uganda	10.55078	42.26937	.2496082
West Bank and Gaza Strip	8.770314	49.39375	.1775592
Africa, Total	160.6845	832.5081	.1930126
Asia, Total	98.85243	452.0181	.2186913

Aid Volatility netODA, All donors

	sd	mean	cv
Cambodia	69.8175	628.8162	.1110301
Developing Countries, T~l	25434.41	110498	.2301797
Mozambique	435.4306	1760.559	.2473252
Rwanda	244.3357	749.6356	.3259392
Tanzania	518.6643	2237.388	.2318169
Uganda	209.5029	1437.538	.1457373
West Bank and Gaza Strip	541.5382	1762.146	.3073174

Aid Volatility CPA

	sd	mean	cv
Cambodia	4.126813	20.3872	.2024218
Developing Countries, T~l	121.5622	1161.281	.1046794
Mozambique	15.26946	82.97529	.1840242
Rwanda	7.367576	18.2721	.4032146
Tanzania	16.54646	86.68748	.1908748
Uganda	8.134997	34.13781	.2382987
West Bank and Gaza Strip	5.087151	30.72696	.1655598
Africa, Total	85.45159	597.1302	.1431038
Asia, Total	36.37811	309.1859	.1176577

Aid Volatility CPA, All donors

	sd	mean	cv
Cambodia	152.8988	614.0015	.2490202
Developing Countries, T~l	24719.62	79795.44	.3097873
Mozambique	497.4599	1534.472	.3241896
Rwanda	315.1188	691.3092	.455829
Tanzania	770.3688	2010.858	.3831044
Uganda	328.1595	1260.825	.2602737
West Bank and Gaza Strip	501.0898	1345.039	.3725467

Appendix 3

Detrending the data using the Hodrick-Prescott filter

One of the main shortcomings of only using the coefficient of variation to measure volatility is that the measures will incorporate the trend of Swedish aid flows. Since volatility reflects the size of the fluctuations around average aid, but not the trend itself, this is not ideal. In this appendix, the standard deviations from detrended time series data for each country are presented as a complementing volatility measure.

The data is detrended using the Hodrick-Prescott (HP) filter. This detrending method is somewhat complicated and will not be described in more detail here.[73] What is generates are values centred around zero instead of around the trend, capturing short-run fluctuations only. This makes the HP-filter unsuitable to combine with CV estimates, which is why the measures are performed separately. As the means approach zero when the HP-filter has been applied, the CV is not defined. The fact that the mean is approximately zero, however, also makes the standard deviations comparable themselves. Most of the studies presented in this report combines either the CV or the HP-filter with other formulas to generate more accurate measure of the volatility.

The tables below are the same as in the analysis above, apart from one alteration. Instead of presenting the CV:s for aid from all donors, the last column in the two tables present the resulting standard deviations after the HP-filter was used on the data.

Table 3. Results from Swedish net ODA

	Swedish aid (net ODA)			
	CV	**mean**	**sd**	**sd (detrended)**
Total recipients	0.2839933	2732.656	776.056	335.3119
Cambodia	0.2402811	23.00937	5.528717	4.79918
Mozambique	0.1783702	85.64812	15.27707	9.446861
Palestine	0.1775592	49.39375	8.770314	6.449615
Rwanda	0.35754	19.975	7.141862	6.064532
Tanzania	0.1816589	91.805	16.67719	16.35136
Tanzania -2014	0.1203091	94.93133	11.4211	9.27138
Uganda	0.2496082	42.26937	10.55078	9.973216

Note: *The columns display the coefficients of variation (CV), the mean, the standard deviation (sd) and the detrended standard deviation, of net Official Development Assistance (ODA) from OECD data. The detrended standard deviation in the last column was calculated after the HP-filter was applied on the data. The remaining columns are the same as in Table 1 in the results section above. The data covers all aid recipients in the years 2000-2015. Note that 'Total recipients' refers to all recipients of net ODA in the OECD database. In the row 'Tanzania -2014', observations from the year 2014 are excluded from the measures.*

[73] For a more indebt discussion of the Hodrick-Prescott filter, see for example Pedersen, K.R. (2001). The Samaritan's Dilemma and the Effectiveness of Development Aid. International Tax and Public Finance, 8(5–6), pp. 693-703.

Table 4. Results for Swedish CPA

	Swedish aid (CPA)			
	CV	**mean**	**sd**	**sd (detrended)**
Total recipients	0.1046794	1161.281	121.5622	109.6358
Cambodia	0.2024218	20.3872	4.126813	3.764335
Mozambique	0.1840242	82.97529	15.26946	8.890754
Palestine	0.1655598	30.72696	5.087151	4.988603
Rwanda	0.4032146	18.2721	7.367576	6.292436
Tanzania	0.1908748	86.68748	16.54646	16.23267
Tanzania -2014	0.1178494	89.93686	10.59901	9.76028
Uganda	0.2382987	34.13781	8.134997	7.127751

Note: *The columns display the coefficients of variation (CV), the mean, the standard deviation (sd) and the detrended standard deviation, of net Country Programmable Aid (CPA) from OECD data. The detrended standard deviation in the last column was calculated after the HP-filter was applied on the data. The remaining columns are the same as in Table 2 in the results section above. The data covers all aid recipients in the years 2000-2015. Note that 'Total recipients' refers to all recipients of CPA in the OECD database. In the row 'Tanzania -2014', observations from the year 2014 are excluded from the measures.*

In the cases where the detrended standard deviation differ a lot from the regular standard deviation, there is some trend in the data which has been removed with the HP-filter. For example, Mozambique has a detrended ODA standard deviation of about 9.45; a lot smaller than the unfiltered one that is 15.28. For the CPA data, the difference is even larger. On the contrary, all four standard deviations of Tanzanian aid lie within the small range of 16.2 and 16.7. Hence, aid flows to Mozambique had a clearer trend than the flows to Tanzania.

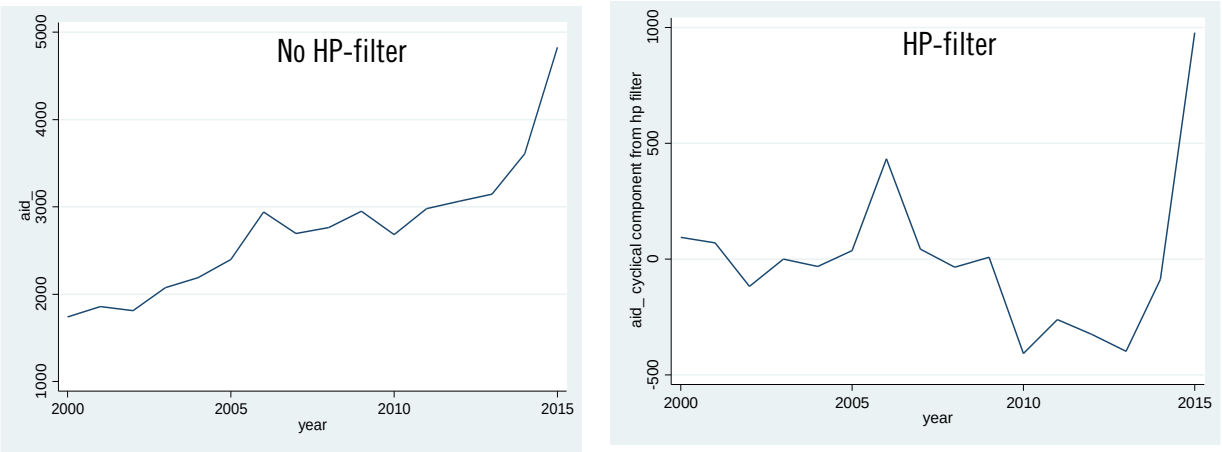
While the Tanzania standard deviation is barely affected at all by the HP-filter, the standard deviations for Mozambique are severely reduced after detrending the data, indicating that the high standard deviations are in part an effect of the trend. A visual representation of this is given in Figure 5.

Figure 5. Swedish CPA to Mozambique, 2000-2015

Note: *the respective tables for ODA data show the same pattern.*

The next finding which stands out when looking at the tables is the major effect the HP-filter has on the standard deviation of 'Total recipient' ODA. The value is reduced to less than half after filter is applied, from 776 to 335. As is confirmed when looking at the original data, the standard deviations are largely affected by the upward trend in ODA over the period. The differences before and after detrending the data can be viewed in Figure 6.

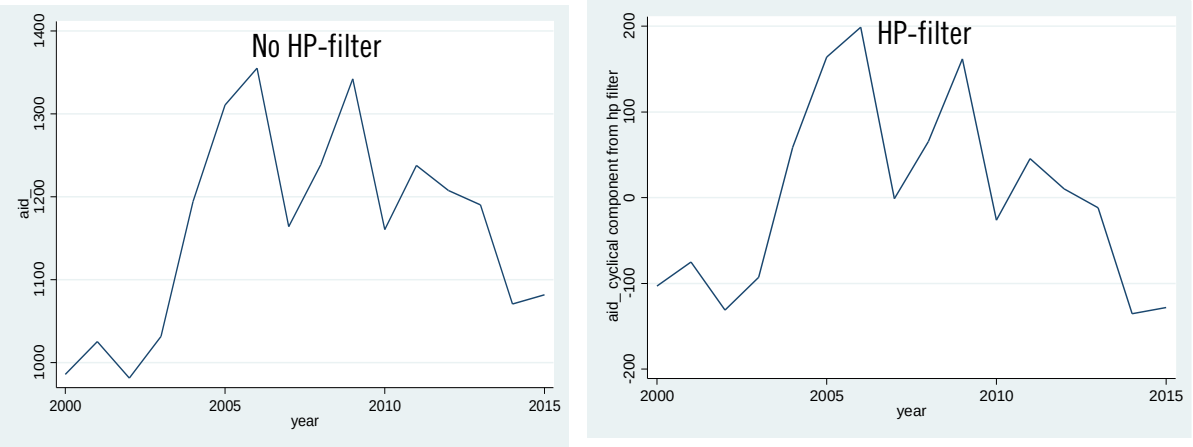
Figure 6. Net ODA from Sweden to all recipients, 2000-2015



The figure well illustrates the magnitude of effect that the trend has on the simply measured deviations, and how this is altered with the HP-filter. While Swedish ODA has been rising almost continuously throughout the studied time period,[74] there has not been any long-going trend in CPA flows. Graphing the corresponding CPA flow before and after the filter is applied, in Figure 7 below, therefore does not show any considerable change of its shape.

[74] For ODA, this trend has persisted since the 1960's. See Appendix 4.

Figure 7. CPA from Sweden to all recipients, 2000-2015.



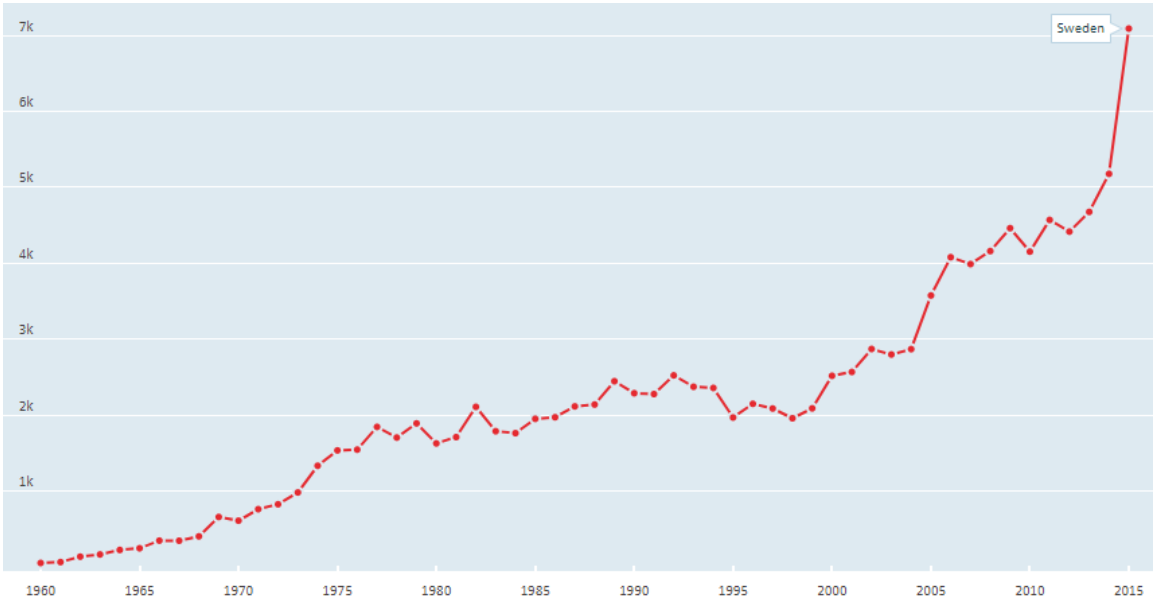
This does not seem strange, again considering the ODA/GNI target and the fact that humanitarian aid is included in the ODA but not in the CPA. Events that call for humanitarian aid occur more or less randomly, as discussed above, and causes a smaller part of ODA to remain as CPA.[75] (However, while CPA has gone up and down a few times between 2000 and 2015, the changes were not rapid and frequent, as they were for Rwanda).[76] The bottom line is that ODA is, in a way, designed to have an upward trend while CPA is driven by debts, humanitarian disasters, and conflicts, which do not have the same nature of increasing over time as GNI does.[77]

[75] Interest payments also have an impact.
[76] Note that the scale of the y-axis in the figure is very different from that in the Rwanda-figure above, since the flow to total recipients is of course much larger. A simple visual comparison might therefore be misleading.
[77] Unless there would be a trend here too, for example due to an increase in natural disasters because of climate change. A longer time span would probably be needed to identify them, however.

Appendix 4

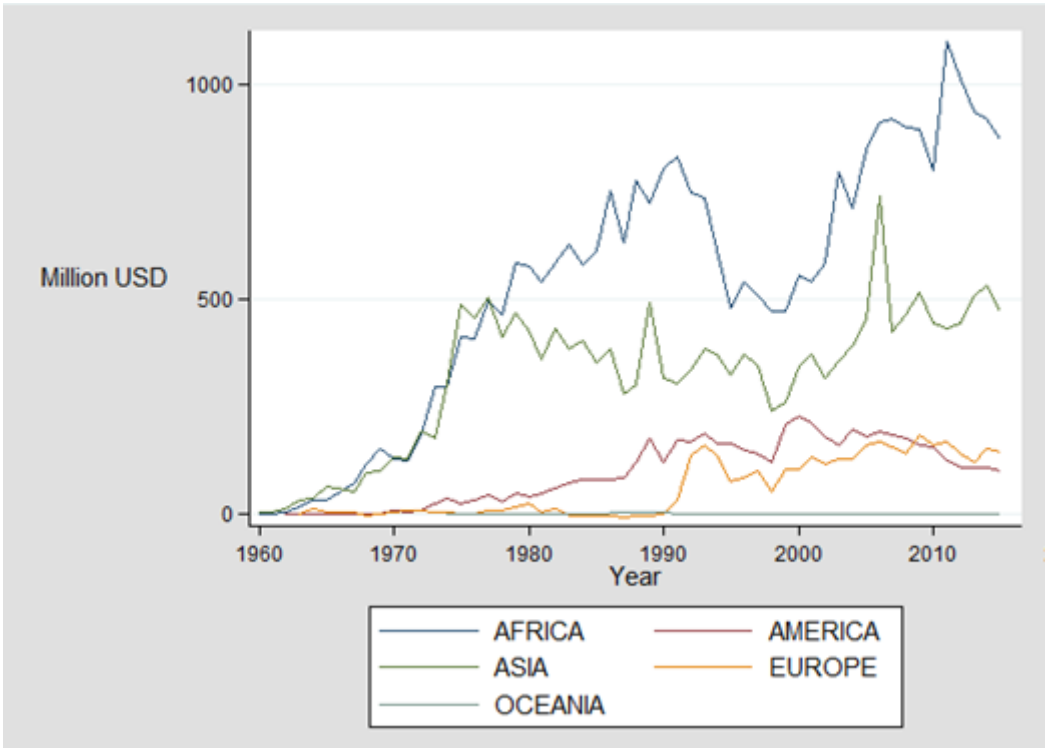
Additional figures

Figure 8. Swedish foreign aid, total, 1990-2015



Source: *OECD (2017), Net ODA (indicator). doi: 10.1787/33346549-en (Accessed on 04 October 2017)*

Figure 9. Swedish foreign aid by continent, 1960-2015



Note: *The graph plots how OECD data on net ODA (DAC 2a) from Sweden has evolved over the years for the five continents.*