

Economic Impact of Refugee Settlements in Uganda*

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28th October, 2016

Policy Report

Uganda is home to close to 800,000 refugees, mostly from South Sudan, Burundi and the Democratic Republic of Congo.¹ It also has one of the most favorable and progressive refugee assistance programs in the world, with freedom of movement, work rights, and land officially set aside for refugees to farm. These policies potentially affect the welfare of refugees as well as the impacts of refugees on host-country populations living around refugee settlements.

A recent study found that refugees and WFP food aid to refugees have positive impacts on local incomes in Rwanda, and these impacts vary by form of food aid (cash or in-kind) as well as across camps (Taylor, et al., 2016; Taylor, 2016). Little is known about the impacts of refugees or refugee food aid in Uganda's unique policy and geographic environment.

Researchers from the University of California, Davis, collaborated with the World Food Programme to document the economic impacts of refugees and WFP aid within a 15 km radius around two refugee settlements in Uganda.

Adjumani is the largest refugee settlement in Uganda, with around 185,000 inhabitants. Rwamwanja is the fifth largest, with around 60,000. Extensive surveys of households and businesses inside and outside these settlements provided data to construct a local-economy impact evaluation (LEWIE; Taylor and Filipiński, 2014) model for the camps and surrounding host-country economies. This model was used to simulate the impacts of an additional refugee household, as well as an additional dollar of WFP aid, on real (inflation-adjusted) total income in the local economy, as well as on the incomes of refugee and host-country households separately. Our key findings are summarized below.

* **Acknowledgements:** This project was funded by the United Nations World Food Programme (WFP) and the UC Davis Temporary Migration Cluster. We are greatly indebted to Lucy Auma, Beatrice Nabuzale, Nelson Okao, Moses Oryema, Hamidu Tusiime and Olivia Woldemikael for their excellent assistance in the field. We thank M&E Unit of WFP in Kampala, Samaritans Purse field office in Rwamwanja and World Vision field office in Adjumani for helping out with logistics during fieldwork. We also extend our appreciation to the Office of the Prime Minister (OPM), United Nations High Commission for Refugees (UNHCR) and sub-county offices in Rwamwanja and Adjumani for their support in overall data collection.

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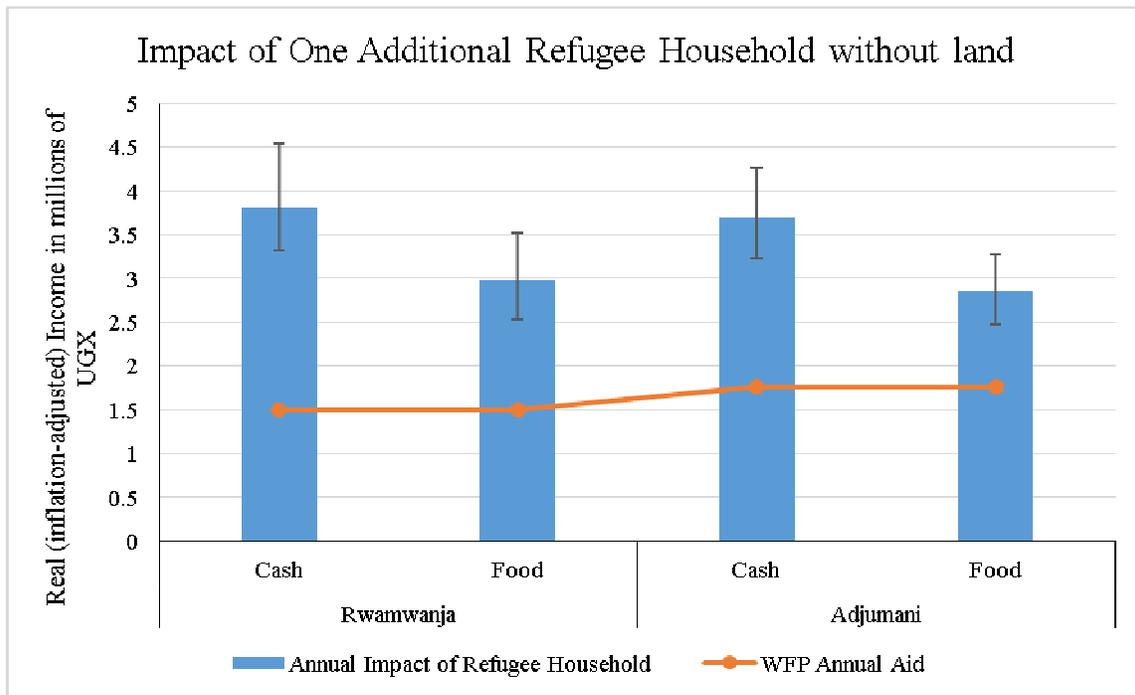
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¹ Accurate as of October 2016; a substantial influx into Uganda continues.

Refugees Generate Benefits for Local Economies in Uganda. Our findings reveal that an average refugee household receiving cash food assistance increases annual real income in the local economy by UGX 3.8 million (\$1,106) at Rwamwanja Settlement, and by UGX 3.7 million (\$1,072) at Adjumani Settlement. These numbers include the income impacts on host-country as well as refugee households. The impacts of refugees receiving aid in food instead of cash are UGX 2.9 million (\$866) and UGX 2.8 million (\$806) at the two settlements, respectively. Our findings indicate that the local income generated by an additional refugee household are significant at both settlements. It is higher for cash than food aid, and it is higher at Rwamwanja than Adjumani.



An additional refugee household without land significantly increases real (inflation-adjusted) income in the local economy. Vertical bars are the annual (inflation-adjusted) income impacts of an additional refugee household without land within a 15 km radius of each settlement. The black vertical lines on top of the bars show the confidence bounds. The orange dots show the annual costs of WFP aid.

The income generated by refugees easily exceeds the cost of WFP food aid at both settlements. Net of WFP food aid costs, an additional refugee household receiving cash aid generates UGX 2.3 million (\$671) in and around Rwamwanja and UGX 1.9 million (\$562) at Adjumani. A refugee household receiving aid in food generates net gains of UGX 1.5 million (\$ 431) above

and beyond the cost of WFP food aid at Rwamwanja and UGX 1.1 million (\$ 318) at Adjumani. The cost of distributing cash using ‘Post Bank’ is lower than the cost of delivering food aid; thus, these numbers give a conservative estimate of the net benefits of cash versus food aid.

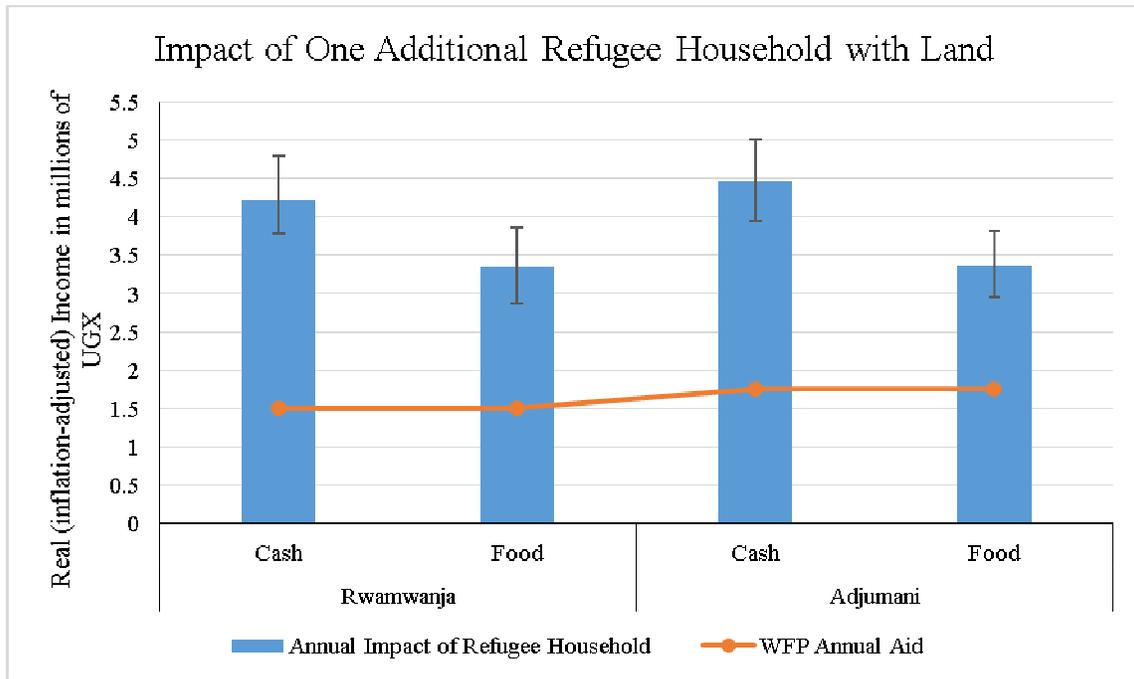
The income refugees generate above and beyond the cost of WFP food aid is called an “income spillover.” Refugee and host-country households and businesses create income spillovers when they spend their cash on goods and services that are supplied within the local economy. Most of the income spillovers from refugees accrue to host-country households and businesses around the two settlements, because they usually have more productive assets and are in a better position to increase their supply of goods and services as the local demand rises. Refugees also create income spillovers for the rest of Uganda, when households and businesses buy goods and services outside the local economy (that is, beyond the 15 km radius around each settlement).

Giving Refugees Land Increases the Impact. A unique feature of Uganda’s refugee support policy is that refugees are allotted homestead land upon registering in the settlement. In addition, some settlements (Rwamwanja) are able to provide cultivatable land for agricultural activities. We find that refugees farm their land intensively; output per acre is significantly higher for refugees than for host-country farmers around the two settlements. This does not mean that refugees are more efficient than host-country farmers (we find evidence that the opposite is true). However, refugees devote considerably more labor to their plots than host-country farms do, and this results in larger harvests per each unit of land.

Refugee farmers, like host-country farms, create income spillovers when they hire labor from other households and purchase inputs from local businesses. They also contribute to the local food supply and potentially influence food prices. Most of the food that refugees produce is consumed within the household or else sold to other refugees.

Providing refugees with land significantly increases refugees’ impacts on local incomes. The income spillover (net of WFP aid cost) from an additional refugee household receiving cash *and* an average-sized parcel of land in Rwamwanja is UGX 2.7 million (\$785)—higher than the spillover without land (UGX 2.3 million, or \$671). In Adjumani, the spillover from a refugee household receiving cash *and* land is UGX 2.7 million (\$785), compared with UGX 1.9 million (\$562) without land. Access to land also increases the local income spillovers created by refugees receiving food aid (to UGX 1.8 million, or \$533, in Rwamwanja and UGX 1.6 million, or \$465, in Adjumani).

Given a piece of land to cultivate, an additional refugee household receiving cash in Adjumani creates as much income in the local economy as its counterpart in Rwamwanja. By calculating difference in local income impacts with and without land, we get an idea of the local value that is created by giving land to refugees. The marginal benefit from providing land to a refugee household ranges between UGX 352 thousand (\$102) to UGX 765 thousand (\$222) annually. The highest marginal gains are for cash-refugees in Adjumani, while the lowest are for food-refugees in Rwamwanja. The marginal gains are higher in Adjumani than Rwamwanja, and they are higher for cash than food at any settlement.



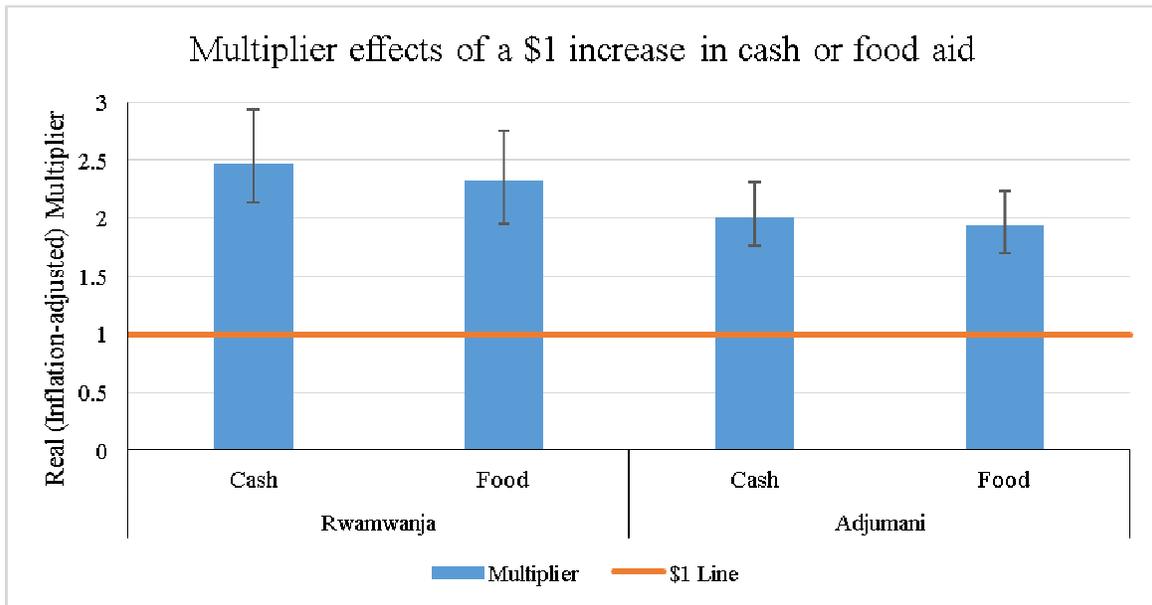
The impact of an additional refugee household is higher with than without land.

Vertical bars are the annual (inflation-adjusted) income impacts of an additional refugee household without land within a 15 km radius of each settlement. The black vertical lines on top of the bars show the confidence bounds. The orange dots show the annual costs of WFP aid. We do not include an imputed cost of agricultural land provided to the refugees by the Ugandan government.

While it may be surprising that providing land creates a larger income effect in Adjumani, a less agricultural region, it is important to understand that the effects of land are at the margin, for each settlement in its current situation. There are likely to be diminishing returns to providing more land to refugee households at a given locale. Providing additional land in a region that already has substantial cultivation (Rwamwanja) does not generate as much benefit as in a more land-constrained region (Adjumani).

The Impacts of Cash Aid Are Higher than the Impacts of Food Aid. The differences in refugee impacts shown above suggest that the form of food aid (cash versus in-kind) matters. We compared the impact of an additional dollar of cash to the impact of an additional dollar’s worth of in-kind food aid at each settlement. The results show that food aid has a larger impact on real incomes when it is given in cash instead of in kind.

Each dollar of cash aid in Rwamwanja increases total real (inflation-adjusted) income in and around the settlement by \$2.47. This is called the “income multiplier” of an additional dollar of aid in cash. The impact of an additional dollar of food aid in kind is slightly smaller: \$2.32. The corresponding numbers for Adjumani are \$2.01 and \$1.94, respectively.

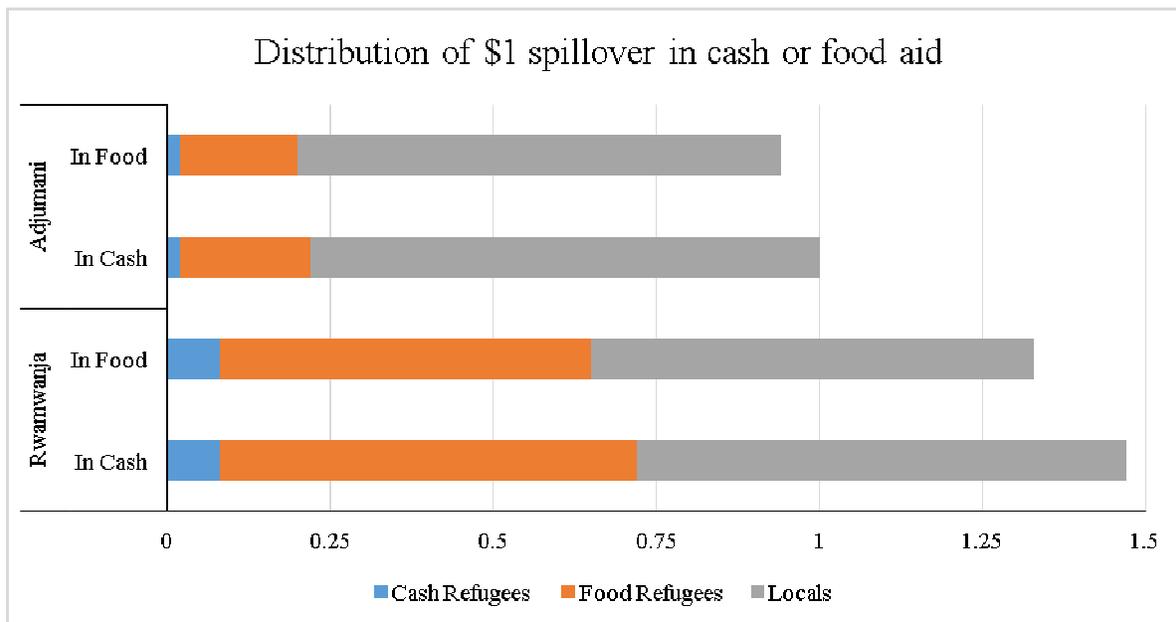


The impact of an additional dollar of food aid is higher when it is in cash. Vertical bars are the real (inflation-adjusted) income impacts of an additional dollar of food aid in cash or in kind within a 15 km radius of each settlement. These are the income multipliers. The black vertical lines on top of the bars show the confidence bounds around each multiplier. The orange line represents the dollar of food aid. The difference between the bar height and red line is the income spillover created by an additional dollar of food aid.

The real income spillover effect of a dollar of cash or food aid is the difference between the multiplier and the dollar transferred. Thus, the spillovers for Rwamwanja cash and food are \$1.47 and \$1.32, respectively. For Adjumani, the real income spillovers are \$1.01 and \$0.94 for cash and food, respectively. The local income spillover from an additional dollar of cash aid is higher than that of food aid at both settlements.

Host-country Households Benefit Most from Income Spillovers. An increase of \$1 in cash aid in Rwamwanja increases the real income of cash-refugee households by \$0.08, and it creates a spillover of \$0.64 to food-refugee households and \$0.75 to local host-country households. An additional dollar of aid in food in Rwamwanja Settlement raises real income in food-receiving households by \$0.57, leaving a spillover of \$0.08 to cash-refugees and \$0.68 to host households.

The largest spillovers in both cases accrue to the local host-country households. The smallest spillovers are to the cash receiving refugee households. Spillovers to food-receiving households are lower in Adjumani than in Rwamwanja. An additional dollar in cash aid creates larger spillovers to host-country households than an additional dollar in food aid at both settlements.

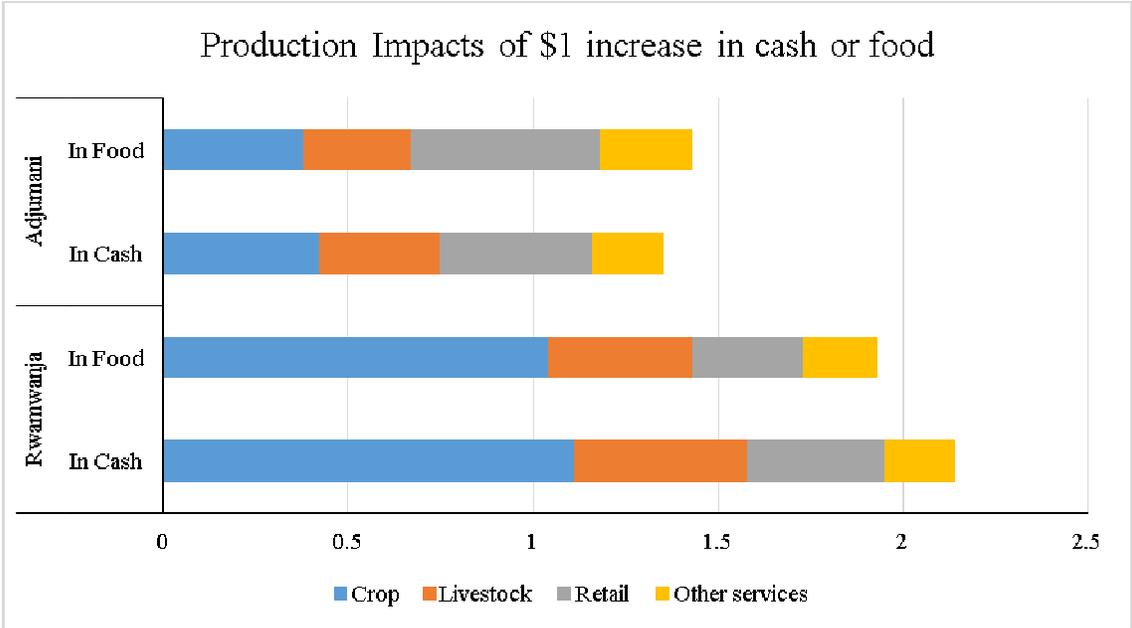


The distribution of spillover of an additional dollar. Horizontal stacked bars are the total spillovers of an additional dollar of food aid in cash or in kind within a 15 km radius of each settlement. The spillovers are distributed across cash refugees (blue portion), food refugees (orange portion) and local households (grey portion).

WFP Food Aid Stimulates Production in and Around Settlements. The largest production impact is on agricultural production in Rwamwanja settlement, which is more agricultural than Adjumani. The value of crop production rises by \$1.11 for an additional dollar in cash aid. The impacts on crop production are less than half this amount—\$0.42—in Adjumani, where the agricultural potential is lower. A substantial portion of production impacts in Adjumani are captured by the retail sector.

Food aid has more complicated impacts on food production. On one hand, by selling part of their food rations, refugees with aid in food gain cash to spend on other food items, including locally produced crops and livestock products. On the other hand, food aid in kind increases the local supply of food, and this can compete with local agriculture. We find that food aid in kind creates smaller impacts on food production at Rwamwanja and Adjumani settlements: \$1.04 and \$0.38, respectively.

The multiplier effects on livestock production range from 0.29 to 0.47, and they are also higher for cash than in-kind food aid. Refugee households in Adjumani spend a smaller share of their income on animal products than those in Rwamwanja, and this helps explain smaller multiplier effects on livestock production in Adjumani. The multipliers on activities supplying other goods and services are in the range of 0.19 to 0.25, and for the most part they are similar in and around the two settlements.



Local production impacts of an additional dollar. Horizontal stacked bars are the total production impacts of an additional dollar of food aid in cash or in kind within a 15 km radius of each settlement. The production impacts can be attributed to crop production (blue portion), livestock (orange portion), retail (grey portion), and other services (yellow portion).

References

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Appendix

A1. LEWIE model

The local economy wide impact evaluation (LEWIE) methodology was designed to understand the full impact of projects and policy within the local economies, including households and businesses indirectly affected. In the Ugandan setting, we defined the local economy as the region within a 15 kilometer radius of each settlement. In the Adjumani case, fragmentation of the FDPs made it necessary to create a different definition of the local economy for each FDP, using the same 15 kilometer radius.

LEWIE is constructed from the ground up by survey data to model micro-economic actors (in this case, refugees and locals living nearby the settlements) in the local economy, following a rich literature on agricultural household modeling. Econometric tools are used to estimate starting values of all parameters in a household expenditure and production function; in the Ugandan case, expenditure functions were separately estimated for refugees receiving cash and food to take into account possible differences in consumption patterns. Production functions were estimated separately for crops, livestock, retail, services and other productive activities, the results of which are used as parameters inside the LEWIE model.

Once household activities are estimated, we model market exchanges between households to create linkages between treated and un-treated households, these linkages allow spillover effects to happen. When a refugee household receives aid in cash or food, these households become a conduit through which the aid enters the surrounding economy. Market clearing conditions determine prices (for non-tradable goods, services and factors) or net trade with the rest of the country outside the local economy (for tradable goods). The economic linkages include refugee households' demand for goods and services sold by host-country businesses and households, refugee business demand for inputs from host-country businesses and households, and refugee workers' supply of labor to host-country as well as refugee businesses. These linkages shape the impacts of refugee aid on host-country businesses and households. Unique to the Ugandan refugee setting, we also introduce a local land endowment to both refugees and locals to capture the additional impacts of providing cultivatable land to the displaced.

The base solution to the GE model replicates the initial conditions in the economy in and around each camp. It is the basis for simulating impacts of refugees and aid in the local economy. To get confidence bounds around simulated impacts, we use a Monte Carlo method that makes repeated draws from all of the parameter distributions and, for each draw, recalibrates the base model. This generates multiple (1000) base models on which to simulate the impact of an additional refugee or an additional dollar of refugee aid. The 95-percent confidence intervals are created from the middle 95 percent of the distribution of simulated impacts for each outcome of interest.

The impacts of a marginal dollar are simulated by increasing the exogenous income of all refugee households by an additional dollar (or 3450 UGX) while holding other parameters constant. Additional refugee household effects are simulated by proportionally increasing the factor, input and output demand, WFP aid as well as output supply to match that which an

average refugee household would bring into the camp. Total land endowment is held constant in the simulations without land, and allowed to increase proportionally in the simulations with land.

A detailed description of the LEWIE methodology is available in Taylor and Filipski (2014). We used the models to evaluate the impacts of refugee assistance on both refugee and host-country households in and around each of the two settlements, and to compare impacts between cash and in-kind refugee households. The LEWIE simulations capture the full economic impact of an additional dollar of refugee aid on the host-country economy in either cash or food, and also simulates the effect of an additional refugee household in cash or food, with or without land. For example, a refugee spends her cash in a store or marketplace inside or outside the camp, and that raises income for the vendor, who then pays a wage to another refugee or to a host-country worker. The store might buy goods to sell from a local Ugandan farm or business, which in turn spends its new profit. The refugee might supply some of her labor to a local farm or business, creating new income for the refugee as well as for the farm or business, and possibly affecting local wages to some extent, as well.

Our simulations do not include the impacts of constructing, maintaining, or expanding refugee camps. UN agencies and other donors invest in building the refugee camp, providing services inside the camp, paying salaries to UN and other aid personnel, purchasing supplies to run the camp, etc. This spending undoubtedly adds to the impacts of hosting refugees. For example, camp workers spend income outside the camp and thus increase the demand for goods and services supplied by Ugandan farms and businesses.