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Co-Modelling for Relief and Recovery from the Covid-19 Crisis in Zimbabwe*†

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Abstract This article presents lessons on transcendence, from research on the socioeconomic impacts of the Covid-19 pandemic to policy, using experiences from Zimbabwe. The case study parallels literature on knowledge translation that suggests that the challenge of evidence-informed policy is more a problem of evidence production than evidence translation. The positioning, influence, and leverage of the research team was predominantly built on a platform of personal relationship legacies, academic legitimacy, and networks. The data and model co-produced with state actors could influence policy decisions and behaviours because they were designed with and for policymakers to assist with policy decisions. The results had direct implications for Covid-19 response measures, informing policymakers on what the impact on different groups is likely to be and indicating what policy measures could do to address impacts. Knowledge co-production also proved pivotal in reducing some of the concerns around the limitations of risk-based modelling in a crisis.

Keywords collaborative modelling, bilateral learning, risk-based modelling concerns, knowledge translation, evidence-informed policy, Covid-19, Zimbabwe.

1 Introduction

This article highlights the importance of the evidence production process for evidence-informed policy. In particular, it shows how co-production between economic modellers and state actors of the research product may reduce some of the concerns around the limitations of risk-based modelling in evidence-informed policymaking. The article examines a project organised by a global thinktank, the Partnership for Economic Policy (PEP), in which the collaboration between local/international researchers and local policymakers creates new research and knowledge

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of global interest to address a timely policy challenge that is implemented locally.

While the promotion of evidence-based development policymaking, invariably through some form of collaboration and partnership with practitioners, has been gaining momentum (Georgalakis *et al*. 2017; Nelson 2017), in line with, among others, Mulugeta *et al*. (2019) and Oliver *et al.* (2021), this article adds to the literature by demonstrating the importance of the process of generating evidence to be itself as significant as the evidence in evidence-informed policy. We illustrate explicitly the working phases and information flow by presenting an internally consistent approach whereby we combine a quantitative economic research tool (economic modelling) with expert knowledge and policymakers' interest to create a bilateral learning nexus from modellers to policymakers and vice versa. Even where evidence appeared very well received, throughout the article, we present critical self-reflections and highlight instances where issues such as power dynamics and political expediency could have come into play, for example in influencing the composition of research teams and the nature of evidence that policymakers generally showed a higher preference for.

The case study we present is based on experiences from a PEP project on Zimbabwe that helped policymakers design and implement policies to address the immediate and medium-term socioeconomic effects of the Covid-19 pandemic as it unfolded (Mabugu *et al.* 2021). The Covid-19 crisis challenged researchers and government policymakers at the time of onset because of the widespread nature of its impacts and the uncertainty concerning their magnitude and duration. The uncertainty and knowledge gap inadvertently created a shared need to understand better the Covid-19 impacts as the health crisis evolved and interrogate how to start building back better after the pandemic.

The model we developed provided quantitative data on the potential impact of the pandemic and the associated socioeconomic shocks on different groups. The reason the data and model could influence policy decisions and behaviours was that it had direct implications for Covid-19 response measures. For example, the disaggregated model could be used to assess various scenarios of possible pandemic severity, mild and severe, with and without mitigation policies under each scenario, a feature policymakers found insightful and useful for their day-to-day work. This approach informed policymakers not only on what the impact on different groups is likely to be, but also indicated what policy measures could do to address the impacts. The model is thus explicitly designed to assist with policy decisions.

The rest of the article is organised into five sections. Section 2 sets out the political economy of evidence production use in

Zimbabwe in the context of the Covid-19 crisis. Section 3 looks at some of the critical issues that were central in ensuring that research-generated policy perspectives found an audience in relevant policymaking arenas and society at large; namely, how we set up the arrangements (entry point, securing a trusted adviser, engagement with policymakers) and then how low (donor and civic society community) and high (the Cabinet) the information generated reached. Section 4 presents in a structured way the working phases and information flow we used to create a bilateral learning nexus from modellers to policymakers and vice versa and, in the process, diminishing general concerns around risk-based modelling for policymaking. Section 5 concludes, drawing lessons for the broader audience.

2 The political economy of evidence production and use in Zimbabwe

Zimbabwe is a small, impoverished, and highly centralised country where national government enjoys a great deal of leeway in the budget. Thus, policy decisions are mostly discretionary choices made by national decision makers and parliament. In line with Nord (2018), country context, particularly in this case the power of centralised organs such as the Cabinet, played a key role. The Cabinet during the pandemic was making inter- and intra-governmental decisions that would direct most crisis mitigation expenditures, a feature which played a key role in shaping government responses to Covid-19 research and translating that into policy. Our study hugely benefited from this feature of the centralised decision-making process as it made it relatively straightforward for our research findings to reach the government.

In the case of our study, the findings are mostly used by the Cabinet to make decisions on Covid-19-related issues, and once the decision is made, its implementation will affect all citizens throughout the country. The government, through the National Covid-19 Task Force representative, took on board some of the preliminary recommendations from our research directly following engagement with us and shared these at ensuing Cabinet meetings (see process outlined and elaborated in sections 3 and 4). The research findings were significant to policymakers in that they expanded their knowledge base of Covid-19 impact and responses in a timely and coherent macro-micro framework. What was novel regarding the early part of the pandemic outbreak and subsequent panic was that the co-produced modelling work was the first such exercise of its kind in the country. Importantly, what the policymakers, empowered by this evidence, seemed to get right was the ability to have meaningful influence over government ministers and non-governmental bodies, especially as non-governmental organs were playing evermore active roles in the delivery of services in mitigation of Covid-19 impacts.

But this successful experience begs the bigger question of what it is that facilitated the research team's access to higher-level policymakers, as well as the translation of the research into actual policy. While many other factors may have been at play, including the overriding necessity of migrating rapidly to online electronic communication platforms, our interpretation is that the deep-rooted and collegial economic modelling team relationships with state actors and a culture of evidence use within the Zimbabwean government played a key role in opening doors for the research team to policymakers. The research team's own positionality played a decisive role in this regard. The nationals in the research team derived legitimacy as respected academics amongst the Zimbabwean politicians and policymakers. They have previously conducted policy-relevant research over the years and been interacting with the Office of the Presidency and Cabinet (OPC) as part of stakeholder engagements, and the research has proved to be both objectively relevant and having practical application in relation to the issues of the day.

Furthermore, some of the OPC top officials who helped with access to government were former university students of PEP research team members. Such ties are very important, albeit often not amplified enough as useful entry points for knowledge co-production in such settings. As such, there have been long-standing professional relationships that have been maintained over many decades that we used effectively as an entry point. While this experience may not necessarily be widely applicable to many other countries or even other policy settings within Zimbabwe, the salient point for the practitioner community is that of knowing and defining clearly upfront one's unique leverage points prior to embarking on the knowledge co-production process. This worked well in the Zimbabwean case.

While our case study experiences as outlined thus far may inadvertently signify that the Zimbabwean government favoured modelling as a key type of research to inform Covid-19 government responses, in reality, this perceived preference was just by coincidence and was a culmination of many other factors at play. Our case is perhaps unique in that it reflects a particular aspect of knowledge co-production, requiring a particular framing of the policy design to make it suitable for modelling analysis, at a very specific moment brought about by the pandemic. Indeed, as we elaborate in later sections, our co-producers in the research exercise – i.e. the policymakers – made many other suggestions that were important for policy but were not followed through because economic modelling was not the best approach to address those questions, important as they were. As the pandemic was unravelling, data on its evolution and economic consequences was scarce, and this drastically narrowed the choice of available methods. So naturally, simulation methodologies such as the ones we used in the economic modelling provided a logical route to follow.

Indeed, the Zimbabwean government does not appear to be inclined to any particular or unique approach to evidence and has embraced a variety of approaches in other policy settings from both local and foreign sources. The government, though, generally prefers any credible research evidence with the proviso that it speaks to issues in Zimbabwe and is conducted with the involvement of Zimbabwean stakeholders and researchers. The government, in the new dispensation following departure from office of the then President Robert Mugabe, has increasingly warmed to evidence-based research, and over the years, the government has been taking on board research findings and global evidence from institutions such as the International Monetary Fund (IMF), the World Bank, and the African Development Bank (AfDB), among other institutions that provide global evidence. National thinktanks such as the autonomous thinktank Zimbabwe Economic Policy Analysis and Research Unit (ZEPARU) have been in some instances commissioned by the government to conduct studies in a variety of areas.

For any such commissioned studies, sometimes even research design and analysis leading to study recommendations are presented to the Cabinet and the president of the country. This shows political will and at least some form of respect for the importance of research in generating evidence for policymaking at the highest level and generally permeates to other spheres of decision-making. Furthermore, some national thinktanks receive budget allocation annually from the country's national budget, a rough indication of the importance attached to their contributions to policymaking architecture. The fact that the government has tacit influence over who does research and the nature of that research to find its way into policy could be construed as a form of subtle political expediency or more cynically as tokenism. However, this situation is perhaps better than the alternative. There is evidence to suggest (Zinyama 2021) that researchers are sometimes humiliated, bullied, and generally insulted in public when they venture into contested policy terrain with, at times, contrary views, sadly a feature that was not uncommon in the recent history of the country prior to the new dispensation.

The elements of power dynamics and political expediency also play out in the insistence on the involvement of local researchers and on Zimbabwean issues, even if these conditions are neither unique to Zimbabwe nor did they constitute an impediment to our work. The preference for local researchers and research questions generated by and with locals resonated well with the PEP objective of involving Southern researchers and voices in Southern research issues. Thus, by default, the research team already satisfied government conditions of a research team led by Zimbabwean researchers and consisting of both national and international researchers. This PEP team worked closely and collaboratively with policymakers in coming up with the inclusive

intervention proposals to subject to quantitative analysis before translating these proposals into policy actions (Mabugu *et al.* 2021).

Finally, we think Zimbabwe provides an interesting approach for a much more resource-constrained African country when dealing with the impacts of the pandemic. How does such a country undertake mitigation and recovery from a position where finances were always tightly squeezed as a result of both severe international economic sanctions and economic decline? Here, we argue that even when foreign aid dwindles and the country is subjected to such a severe negative shock as the pandemic, having state actors with sound research literacy at various government levels significantly ameliorates the negative consequences of shocks. There is capacity in various Government of Zimbabwe ministries and state-owned enterprises. On economic issues, these government institutions are staffed with technical people with academic qualifications being mostly at master's and doctoral levels. Furthermore, there are other government officials who have even worked outside the country in other jurisdictions, hence they have international experience.

With regard to structured support connecting evidence with policy, the fact that the Cabinet sometimes makes decisions using evidence from research on any particular issue is one connection that exists between evidence and policy. That said, despite Zimbabwe's turbulent past and difficult economic situation, this nascent culture of evidence use in government has facilitated the acceptance and use of the evidence generated in this project for policymaking. Other than the evidence itself, admittedly, many other factors influenced decision-making, including political expediency, ideology, and short-term priorities. As an example of the latter, although it might not have been explicitly stated, Zimbabwean policymakers would probably have perceived this project as one way of re-engaging with external donors to fund even larger interventions aimed at groups left behind by the devastating effects of the pandemic. It is quite conceivable this may in part explain why policymakers played a large role in facilitating the modelling team's access beyond the Cabinet to civic society and the donor community to share the results of the work (see section 3 for further elaboration).

3 Partnership arrangements and process

As discussed in section 2, building enduring relationships with policymakers proved important in opening doors to them and subsequently for the government to use evidence generated in policy. In our view, it was not just that the findings were timely and could be translated into policy user formats, though this was important, but that at the root of it were partnerships. We document and discuss three other main elements regarding partnership arrangements that were pivotal for the successful execution of the process.

The first is that the entry point matters for researchers regarding partnership formation for collaborative modelling; in particular, how one goes about setting up the arrangements. Our experience constitutes what can be characterised as PEP's niche insider status with policymakers during the Zimbabwe project. From the very outset, we as the PEP team were very clear in our strategy that developing a strong PEP team with the ability to not only forge but also sustain enduring relationships with the OPC in Zimbabwe was going to be a critical condition for project success. As described previously and reiterated here, the positioning, influence, and leverage PEP and the local team enjoys is built on a combination of the legacy of PEP researchers being respected academics, their personal relationships, and their networks. The personal relationships local researchers had with state actors is what is often referred to in the policy literature as niche insider status, wherein access to OPC in this case is facilitated by these relationships (Maloney, Jordan and McLaughlin 1994).

For our study, just before we commenced our research, we sought approval from the Chief Secretary to the president and the Cabinet to conduct the study. The request was not only granted but also other relevant government arms were directed to cooperate with us on the study. The same request was also a way of informing the Government of Zimbabwe about the study and this created a sense of eager anticipation of the research evidence as it unfolded. What cemented the relationship over and above the niche insider status enjoyed by the researchers in our assessment was also: (1) a shared sense of urgency and desire to seize the opportunity to understand on both sides the impacts and rethink gender-focused development during a crisis, and (2) the centralised decision-making system in Zimbabwe alluded to earlier in section 2 through the Cabinet.

Thus, while there was no binding agreement developed or signed between us and the Cabinet, what was important in this process at the time was our niche status, a 'coincidence of wants' at that opportune moment, prior 'institutionalised' knowledge on both sides of the policy and research divide and what would be brought to the table, and that the Chief Secretary to the president and the Cabinet took it upon himself to send formal letters to all relevant ministries and policy organs at very high local level, introducing and endorsing the project. Maloney *et al*. (1994) refer to this as the rules of the game already factored in between the two sides, given the long association described earlier in this section and section 2. The information sharing at high policy level with other organs of state by the Chief Secretary further created the opportunity for developing a mutual agenda between the policy experts, policy contacts, and the research team.

Since different priorities often limit the establishment of mutual agendas in research–policy partnerships, such an invitation to collaborate within the process was essential for building

mutual agendas as much as possible (Georgalakis and Rose 2019; Newman, Bharadwaj and Fransman 2019) in the context of collaborative economic modelling. Admittedly, it is unlikely that all groups that produce knowledge relevant to the response to the pandemic can enjoy such niche access as we did, nor should it be a general expectation, but a general lesson here would appear to be that these relationships can be built through long-term investment. This is especially relevant for stakeholder engagements including deliberate actions by researchers to involve policymakers in knowledge co-production and always safeguarding researcher independence and objectivity. It does appear from the Zimbabwean case that safeguarding objectivity and yet being deliberate about knowledge co-production also enhances researcher credibility in the eyes of policymakers. This no doubt has wider or growing relevance for other country contexts.

The second feature of the work was that in order to corroborate results from the quantitative analysis, get buy-in from other key stakeholders (not necessarily those with previous relations or connections with researchers, i.e. policy experts and policymakers), and ensure recommendations are used, strong relationships had to be forged with the implementing ministries and agencies in government. Notwithstanding the well-documented risks involved in using modelling analysis for policy, generally addressed in section 4, and how these risks were minimised during the modelling approach, the following institutions in the process at the coalface of the Covid-19 policy response particularly stand out and were enduring: the Ministry of Finance and Economic Development, Ministry of Health and Child Care, Ministry of Industry and Commerce, Ministry of Tourism, Ministry of Small to Medium Enterprises, the Zimbabwe Tourism Authority (ZTA), Zimbabwe National Chamber of Commerce (ZNCC), Confederation of Zimbabwe Industries (CZI), and the Chamber of Mines.

As will be discussed further on in this section and in section 4, the approach taken with these central agencies followed the introductory letter sent from OPC and consisted of interactive workshops and one-on-one engagements facilitated via online platforms. It also comprised in-person follow-up by locally based researchers, where necessary, with the respective experts and policymakers. This ensured that these experts were informed and also able to influence the design of policies to respond to the Covid-19 crisis as it unfolded. The specific modelling innovations for the project included modelling more scenarios as they were motivated and requested by government itself (see elaboration in section 4).

The third and final feature was the interaction with civil society and the donor community. What is unique about this aspect for Zimbabwe is perhaps that the policy partners facilitated our

research team engagement with civil society and donors. This is interesting because often we see development researchers engaging with civil society and not government or using donors as leverage to engage their findings with policy. In our case, the government brokered our own engagement with civil society as we were located closer to the government and further away from civil society than the government was when it came to the specific issue of policy response to the ongoing pandemic.

The Coordinator of the National Covid-19 Technical Task Force made it her role to facilitate our engagement and presentation of study findings in these other fora, such as groupings of development partners and civil society where Covid-19 issues and policy programming were discussed. She was in any case the main coordinator of these stakeholder engagements with the government. Given the panic and vacuum of credible information surrounding the onset of the Covid-19 crisis, the government was well positioned to champion this role as this was a completely new issue, in that none of our researchers had dealt with civil society and donors before.

As already alluded to, Zimbabwean policymakers would probably have perceived and realised that the reputation of PEP itself and links to funding from the International Development Research Centre (IDRC) on this project offered an opportunity for them to re-engage with donors to fund larger-scale interventions for groups left behind by the devastating effects of the pandemic. This in part may explain why policymakers played a significant role in facilitating the modelling team's access to civil society and the donor community to share the results of the work.

4 Economic modelling collaboration between researchers and state actors

The Covid-19 crisis has challenged policy analysis with its multidimensional impacts on productivity and trade (Kim *et al.* 2022; McKibbin and Fernando 2020a, 2020b; van Heerden and Roos 2021). We start this section by explaining why computable general equilibrium (CGE) with microsimulation were chosen as the main tools for the analysis. At the time of the study, surveyed data as empirical data were not yet available as a base for impact analysis. As the Covid-19 crisis impacted multiple channels in the economy, an economic policy simulation model was the appropriate tool to simulate and analyse impacts and policies.

The experimental framework of an economic policy simulation model requires model development based on statistical data. Since the pandemic created economy-wide impacts, we chose a CGE model as a suitable simulation tool to analyse economic shocks on economic growth, economic sectors, and different agents. The main advantages of CGE models are the relatively small data requirements, the scientifically rigorous methodological framework based on microeconomic and

macroeconomic theory, and the high flexibility in application. These advantages make CGE models a flexible quantitative analysis tool applicable for relatively low development cost in countries with small data availability (Devarajan and Robinson 2013; Lemelin and Savard 2022).

However, using CGE models (or economic models in general) as a policy decision support tool has its limits and risks for the policy decision process (Devarajan and Robinson 2013; Lemelin and Savard 2022). These include:

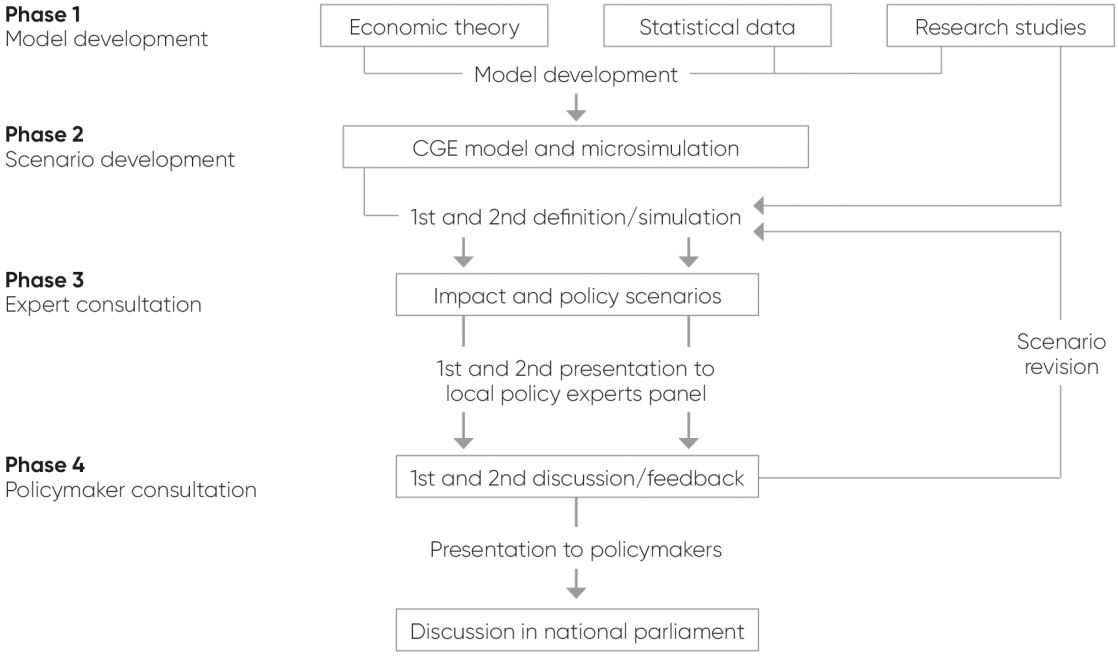
1 Representing the economy with different markets, sectors, and agents. CGE models are complex algebraic model systems. Policymakers perceive them as 'black box' models, with mechanisms and results that are challenging to be understood.

2 Although highly complex, CGE models can only be considered as a simplified representation of reality, subject to the underlying assumptions, data, and model algorithm. Normally, CGE models represent sufficiently well the most important aspects to address the research question. However, no CGE model can capture all phenomena and characteristics of the complex and dynamic economic reality and policy decisions.

3 CGE models provide quantitative results on simulated economic impacts. These results inform on the trend and the magnitude of economic changes, which can be used to support policy decisions. However, CGE model results require careful interpretation subject to the limitation. If policy decision makers interpret results selectively without sufficiently considering their limits, this can misinform the support to policy decisions.

4 The results of CGE model simulations represent only a selected set of potential impacts or policy options and need to be treated like this. In reality, the economic impacts and space for policy options are much bigger than a CGE assessment can cover. If policymakers focus exclusively on the assessed impacts and options, other relevant potential impacts and options could be missed. In this regard, CGE models and their results cannot guide policy decisions. They feed into the policy debate. The policy debate will assess impacts and policy options under consideration of non-modelled aspects and influenced by the dynamics and objectives of policymaking. Policy decisions might not be driven by numbers or trends indicated by CGE model simulation results. The policy decisions are normally taken based on domestic political consensus (Devarajan and Robinson 2013). Last but not least, CGE models used for policy decision-making should be considered, as stated by Lemelin and Savard (2022):

Figure 1 Process of stakeholder-oriented economic policy modelling



Source Authors' own.

> CGE (and other) models are useful to contribute insights to the policy debate[s]… while leaving some room for improvement – no model is perfect, no model is complete. It would be fair to say that every model should be considered as a work in progress.
> (Lemelin and Savard 2022: 771)

To overcome limits and reduce the risks for policy decision-making, and to provide the most representative analysis as possible we (PEP researchers) followed a stakeholder-oriented economic modelling approach. A stakeholder-oriented application of the model required participatory development and validation by policy experts and makers (hereinafter referred to together as policymakers or state actors). The participation of policymakers in the development process can lower the burden to understand the model and the simulation results (Benfica 2021; van Bruggen, Nikolic and Kwakkel 2019). By involving the policy experts directly and interactively in the modelling process, a second aspect to learning on the part of the modellers can be achieved; i.e. the model can be designed according to stakeholders' perceptions and their subsequent further input (Süsser *et al*. 2021). As a participatory approach, we followed PEP's approach,

> which is premised on the belief that evidence produced from an in-country perspective, by empowered and engaged local researchers, results in better policy choices, more sustainable development outcomes, and more inclusive policy debates. As a network, PEP facilitates collaboration between local researchers and stakeholders to produce contextualised, policy-relevant evidence.
> (de Haan and Sanchez-Swaren 2022: 48)

In this stakeholder-oriented approach to economic modelling, we designed impact and recovery scenarios of interest and allowed for revisions of the analysis after the discussion of results. Figure 1 presents schematically the approach and processes that this project followed in that regard. In phases 1 and 2, we developed the economic policy simulation model as a CGE model linked to a microsimulation model (Decaluwé *et al*. 2013). We combine the CGE model with a distributional analysis (microsimulation) to analyse the impact on poverty at household level (data obtained from Davies, Kwaramba and van Seventer 2018; ZIMSTAT 2018, 2019; ZIMSTAT and World Bank 2020). We then developed the model for Zimbabwe by consulting academic studies and reports (ZIMSTAT 2018, 2019; ZIMSTAT and World Bank 2020), as well as including home-based researchers from the local university in the modelling team.

Next, we designed first impact scenarios based on research studies on other African countries which provide estimates on the expected economic impacts (e.g. Fofana and Sall 2020; Djiofack, Dudu and Zeufack 2020; Escalante and Maisonnave 2022; Maisonnave and Cabral 2021). Based on the official reports of the Government of Zimbabwe (2020a, 2020b) we defined first mitigation scenarios, which we presented in Phase 3 to the Zimbabwean policy experts. After revisions (see Mabugu *et al*. 2023 for how such revisions played out in practice) in which we redefined the impact and policy scenarios according to the experts' knowledge, we presented in Phase 4 the 'new' results to the policymakers. This interactive two-way learning process built not just co-production and co-learning and much-needed transparency around what economic models could or could not do, but importantly cemented the much-needed trust between researchers, local policy experts, and policymakers which was pivotal in ensuring the analysis linked to the specific policy needs of users.

With the closely oriented collaboration and inclusion of experts' knowledge, we addressed concurrently several limitations and risks as outlined in section 4. Through extensive explanation and presentation, we reduced the burden for policymakers, helping them to understand and trust the 'black box model'. With the model validated by experts and the corresponding revision, we progressively nudged the model closer to reality at the same time, taking into account the more relevant aspects.

Through presenting and explaining the results, we bring them into the policy debate and reduce the risk of selective bias or misinterpretation. By offering several different scenarios, we can outline a larger set of possible impacts and policy options than focusing on only a small set of scenarios.

By means of further explanation, from an initial two policy simulations, we ended up with 11 policy simulations run through the modelling tool. Most of the new policy suggestions from policymakers were also motivated by the fact that during the life of the project, different Covid-19 variants began to emerge, resulting in more serious illness and a greater number of deaths. These variants were envisioned neither during the planning period of the project nor at the inception and carrying out of the research study. Also, from their side, participants from the government had to be agile and responsive to new priorities and pressures from their political managers. This had a bearing on what they would prioritise or hope to get from the participation, even if at times it would prove unfeasible to accommodate some of the 'demands', given the nature of the research design.

The approach to gender modelling greatly improved as a result of the interaction with policymakers and representatives from the gender, labour, and agriculture ministries. Particular attention and emphasis were subsequently placed on the labour market as well as the agricultural sector in order to capture the realities of the Zimbabwean labour market and therefore, gender inequities. For instance, in large-scale farming, two thirds of the wage bill is allocated to permanent male workers, while this type of labour is absent from small-scale farming where female workers are more prevalent. Zimbabwe women are particularly prevalent in the agricultural sectors, especially in the smallholder farming sector and have less access to capital than men. We modelled this at the behest of the policy partners and went on to include a capital subsidy policy simulation for the agricultural sectors with a subsectoral emphasis on the smallholder farming sector as a simulation (Mabugu *et al.* 2023).

With hindsight, having different voices in the teams raising concerns and participating in the modelling was critical, not only to arrive at solutions that could be implemented but also as a mechanism that reduced some of the concerns around the limitations of risk-based modelling in a crisis. The strategy facilitated knowledge co-production, and better assimilation and use for both researchers and state actors, and ultimately at Cabinet level. However, the process was not always smooth and at times even became chaotic as would be expected when a team of policymakers, academia, and civil society organisations collaborate.

Quite often, we would receive many good suggestions on interventions, but these were usually made based on the area

of expertise, patronage, or what could be described as the topicality or 'flavour of the moment'. These suggestions did not always prove to be feasible with regard to the pandemic and recovery, or lend themselves to the economic modelling tool. Some of the suggestions were also at times generic in nature – a classic example being 'we need more funding' or requests for better implementation from each of the state actor participant's specific constituencies.

While important, many of these issues could not be addressed using the tool developed for the specific exercise, and it was important to be frank and honest about this without undervaluing the issue or giving the impression of being dismissive. On self-reflection, our view as lead researchers on the project is that the combination of such a study driven by modelling with in-depth interviews with selected relevant actors may have been helpful in advancing the design of these policies and accommodating some of the issues stakeholders raised that were not compatible with our type of modelling approach. Filling these gaps is important going forward. It may also be useful to select some specific policies and attempt to design and implement a more rigorous economy-wide modelling evaluation study complemented with the aforementioned in-depth interviews.

Finally, at times, it was clear to us that the modelling design and results from such modelling is too complex for the policymakers, even having taken into consideration the online and face-to-face follow-ups that took place as previously outlined. It may have been useful to design some more innovative ways of informing the main aspects of the research, including results interpretation (such as short interactive video). Thus, our own learning as economic modellers from this experience would be that an innovative communication, advocacy, and dissemination strategy should accompany the modelling from the outset.

5 Concluding remarks

This article makes the point that the process of generating evidence-based recommendations for policy should be as important as their content. An important dimension of the article is the learning about how collaborative economic modelling as a form of co-production of evidence may reduce some of the concerns around the limitations of risk-based modelling in a crisis. Partnerships in this respect were pivotal and, it goes without saying, there is a need for researchers to be deliberate in investing in activities that forge enduring partnerships with state actors. The article highlights several messages.

First, country context, particularly the underlying socio-political conditions and culture of using research, plays a key role in shaping government responses to Covid-19 research and translating that into policy. Together with state actors, we exploited the paucity of evidence on the unanticipated

shock of the pandemic and the centralised nature of policy decision-making. This then allowed us to rapidly formulate a number of mitigation and recovery policy measures and to find an audience at the highest level of policy decision-making.

Second, the importance of designing an interactive yet structured framework with internal consistency to enhance co-production, co-learning, and transparency, and to build the much-needed trust of policymakers in the results arising from technical economic modelling. The approach chosen needs to be flexible and adaptable enough to provide evidence-based input with very short turnaround times.

Third, while, as elsewhere, public institutions in Zimbabwe need official channels to gain meaningful cooperation, the process of building mutual respect involves enduring relationships that may be forged through long-term investments in knowledge co-production. In addition, understanding how key decision makers and relevant stakeholders react to evidence-based policy responses during feedback sessions and then meaningfully implement those responses is key to having policies established.

Fourth, involving policymakers, particularly in simulation design and interpretation of the model results, is pivotal to minimising risks around engaging modelling with policy. Complementing this is a need for economic modellers to invest in developing innovative communication and dissemination strategies that reinforce learning amongst state actors in the intricacies of economic modelling.

Notes

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References

Benfica, R. (2021) '**Country Level CGE Models as Decision Support Tools for Development Policy**', *CGIAR Research Programme on Policies, Institutions and Markets*, 12 March (accessed 13 February 2023)

Davies, R.; Kwaramba, M. and van Seventer, D. (2018) ***A 2013 Social Accounting Matrix for Zimbabwe***, WIDER Working Paper 2018/139, Helsinki: United Nations University–World Institute for Development Economics Research (UNU-WIDER) (accessed 13 February 2023)

Decaluwé, B.; Lemelin, A.; Robichaud, V. and Maisonnave, H. (2013) ***PEP-1-t (Single-Country Dynamic Version)***, Partnership for Economic Policy (accessed 24 February 2023)

de Haan, A. and Sanchez-Swaren, E. (2022) '**Positioning Research for Impact: Lessons From a Funder During the Covid-19 Pandemic**', *IDS Bulletin* 53.3: 41–58, DOI: **10.19088/1968-2022.126** (accessed 13 February 2023)

Devarajan, S. and Robinson, S. (2013) '**Contribution of Computable General Equilibrium Modeling to Policy Formulation in Developing Countries**', in P.B. Dixon and D.W. Jorgenson (eds), *Handbook of Computable General Equilibrium Modeling SET, Vols. 1A and 1B*, Amsterdam: North-Holland (accessed 13 February 2023)

Djiofack, C.Z.; Dudu, H. and Zeufack, A.G. (2020) '**Assessing COVID-19's Economic Impact in Sub-Saharan Africa: Insights from a CGE Model**', in S. Djankov and U. Panizza (eds), *COVID-19 in Developing Economies*, London: Centre for Economic Policy Research (CEPR) Press (accessed 1 June 2023)

Escalante, L.E. and Maisonnave, H. (2022) '**Gender and Covid-19: Are Women Bearing the Brunt? A Case Study for Bolivia**', *Journal of International Development* 34.4: 754–70 (accessed 13 February 2023)

Fofana, I. and Sall, L.M. (2020) '**Country Exposure to Covid Related Commodity Price Shocks: Southern Africa**', *Covid-19 Bulletin* 9, Kigali: AKADEMIYA2063 (accessed 1 June 2023)

Georgalakis, J. and Rose, P. (2019) '**Introduction: Identifying the Qualities of Research–Policy Partnerships in International Development – A New Analytical Framework**', *IDS Bulletin* 50.1: 1–20, DOI: **10.19088/1968-2019.103** (accessed 13 February 2023)

Georgalakis, J.; Jessani, N.; Oronje, R. and Ramalingam, B. (eds) (2017) ***The Social Realities of Knowledge for Development: Sharing Lessons of Improving Development Processes with Evidence***, Brighton: Institute of Development Studies and Impact Initiative (accessed 13 February 2023)

Government of Zimbabwe (2020a) *National Development Strategy 1: January 2021–December 2025*, Harare: Zimbabwe Ministry of Finance and Economic Development

Government of Zimbabwe (2020b) *The 2020 Mid-Term Budget and Economic Review*, Harare: Zimbabwe Ministry of Finance and Economic Development

Kim, E.; Jin, D.; Lee, H. and Jiang, M. (2022) '**The Economic Damage of COVID-19 on Regional Economies: An Application of a Spatial Computable General Equilibrium Model to South Korea**', *Annals of Regional Science*, Special Issue Paper, DOI: 10.1007/s00168-022-01160-8 (accessed 13 February 2023)

Lemelin, A. and Savard, L. (2022) '**What Do CGE Models Have to Say About Fiscal Reform?**', *Economic Analysis and Policy* 74 (June): 758–74, DOI: 10.1016/j.eap.2022.04.003 (accessed 13 February 2023)

Mabugu, R.E.; Maisonnave, H.; Henseler, M.; Chitiga, M. and Makochekanwa, A. (2023) '**Implications of COVID-19 and Mitigation Measures on Gender and the Zimbabwean Economy**', *Economic Modelling* 121 (April): 106225, DOI: 10.1016/j.econmod.2023.106225 (accessed 13 February 2023)

Mabugu, R.E.; Makochekanwa, A.; Maisonnave, H.; Henseler, M. and Chitiga, M. (2021) ***Simulations of Policy Responses and Interventions to Promote Inclusive Adaptation to and Recovery from the COVID-19 Crisis in Zimbabwe***, Final Research Report MPIA-20586, Nairobi: Partnership for Economic Policy (accessed 13 February 2023)

Maisonnave, H. and Cabral, F. (2021) ***The Impact of Covid-19 on the Senegalese Economy: From a Gender Perspective***, PEP Working Paper 2021-02, Nairobi: Partnership for Economic Policy (accessed 13 February 2023)

Maloney, W.A.; Jordan, G. and McLaughlin, A.M. (1994) '**Interest Groups and Public Policy: The Insider/Outsider Model Revisited**', *Journal of Public Policy* 14.1: 17–38, DOI: 10.1017/S0143814X00001239 (accessed 13 February 2023)

McKibbin, W.J. and Fernando, R. (2020a) 'Global Macroeconomic Scenarios of the COVID-19 Pandemic', *Covid Economics* 39, London: CEPR Press

McKibbin, W.J. and Fernando, R. (2020b) '**The Global Macroeconomic Impacts of COVID-19: Seven Scenarios**', *Asian Economic Papers* 20.2: 1–30, DOI: 10.1162/asep_a_00796 (accessed 13 February 2023)

Mulugeta, M.F.; Gebresenbet, F.; Tariku, Y. and Nettir, E. (2019) '**Fundamental Challenges in Academic–Government Partnership in Conflict Research in the Pastoral Lowlands of Ethiopia**', *IDS Bulletin* 50.1: 99–120, DOI: **10.19088/1968-2019.108** (accessed 13 February 2023)

Nelson, S. (2017) 'Opportunities, Ownership and Tailored Outputs: How to Respond to Demand for Evidence', in H. Corbett *et al.* (eds), *Overcoming Common Barriers to Research Impact: Five Learning Guides that Explore How Research Can Bring About Change*, Brighton: Institute of Development Studies and Impact Initiative

Newman, K.; Bharadwaj, S. and Fransman, J. (2019) '**Rethinking Research Impact through Principles for Fair and Equitable Partnerships**', *IDS Bulletin* 50.1: 21–42, DOI: **10.19088/1968-2019.104** (accessed 13 February 2023)

Nord, C. (2018) *Translating as a Purposeful Activity: Functionalist Approaches Explained*, 2nd ed., London: Routledge

Oliver, K.; Hopkins, A.; Boaz, A.; Guillot-Wright, S. and Cairney, P. (2021) '**What Works to Promote Research–Policy Engagement?**', *Evidence and Policy: A Journal of Research, Debate and Practice* 18.4: 691–713, DOI: 10.1332/174426421X16420918447616 (accessed 13 February 2023)

Süsser, D. *et al.* (2021) '**Model-Based Policymaking or Policy-Based Modelling? How Energy Models and Energy Policy Interact**', *Energy Research and Social Science* 75 (May): 101984, DOI: 10.1016/j.erss.2021.101984 (accessed 13 February 2023)

van Bruggen, A.; Nikolic, I. and Kwakkel, J. (2019) '**Modeling with Stakeholders for Transformative Change**', *Sustainability* 11.3: 825, DOI: 10.3390/su11030825 (accessed 13 February 2023)

van Heerden, J. and Roos, E.L. (2021) '**The Possible Effects of the Extended Lockdown Period on the South African Economy: A CGE Analysis**', *South African Journal of Economics* 89.1: 95–111, DOI: 10.1111/saje.12273 (accessed 13 February 2023)

ZIMSTAT (2019) *Understanding Gender Equality in Zimbabwe: Women and Men in Zimbabwe Report 2019*, Harare: Zimbabwe National Statistics Agency

ZIMSTAT (2018) *Poverty, Income, Consumption and Expenditure Survey 2017 Report*, Harare: Zimbabwe National Statistics Agency

ZIMSTAT and World Bank (2020) ***Zimbabwe Poverty Update 2017–19***, Harare: Zimbabwe National Statistics Agency and World Bank (accessed 13 February 2023)

Zinyama, T. (2021) '**Systemic Corruption in Zimbabwe: Is the Human Factor the Missing Link?**', *African Journal of Public Affairs* 12.1: 132–52 (accessed 24 February 2023)