Comments submitted to the SAB Economy-Wide Modeling Panel

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Major Comments on Panel's Draft Responses on Social Costs and Social Benefits

(1) When making research recommendations across the three timeframes (possible now, near-term, long term), we ask that the panel distinguish between research gaps around a particular phenomenon or factor more generally, research gaps with regard to how to represent that phenomenon or factor in a CGE model, and implementation challenges when attempting to apply a CGE model in a particular context.
    a. One example on p. 6: recommend integrating behavioral economics into CGE models with a specific example of adding in the e.e. paradox. Our understanding is that the empirical literature is not in agreement about the circumstances and extent to which this observation holds, which leaves us wondering what steps we should take to begin incorporating it into a CGE model.

(2) Involuntary unemployment
    a. p. 6, lines 33-34 – recommend that in the near term we encourage efforts to incorporate involuntary unemployment into CGE models, but other places in the document it doesn't sound like the state of the science agrees yet on how one would go about achieving such an objective
    b. P. 26 states "while some CGE models are moving in that direction (referring to a dynamic model that generates large and persistent earning losses following a layoff), to our knowledge no economy-wide model yet exists to fully capture these losses.
    c. P. 55 states it is the rare CGE model that even addresses unemployment
    d. p. 80 says one could consider structural unemployment by adding heterogeneity in skills among workers but that such an extension would be potentially difficult and complex.

(3) Transition costs
    a. p. 16, lines 27-28 the document states that in principle transition costs are part of social costs and are thus desirable to include in the analysis.
    b. On p. 26, it appears to be less of a settled issue. The draft states it remains an open question how much of earnings loss represents a social cost as opposed to a purely distributional effect.
    c. It would also be useful for the SAB to clarify its definition of transition costs as several different interpretations are referenced on p. 16 (lines 20-21 v. lines 31-32)

(4) Recommendation in benefits discussion that EPA not include productivity gains of the workforce in any CGE or PE modeling or in any BCA at this time (p. 62, lines 17 – 19). If this is the consensus view, we ask that the panel to explain its reasons for such a strong recommendation and provide direction on the types of research/actions EPA could take to make progress in this area.

Second Half of the Charge – Major Comments

(1) Some aspects of the charge questions are not always explicitly discussed. For example, section 5.1 asks, "relative to other tools in EPA's toolbox (PE or bottom approaches) does a CGE model add value with regard to economic impacts (as opposed to welfare analysis)? In some cases, it seems as though the implied bottom line is that CGE models are not the right tool – at least not currently - and that a PE or bottom up approach might yield a better approximation, but the panel stops short of saying this explicitly.
    a. Sectoral impacts (p. 69-70) – plant openings and closings are mentioned as a specific example where linking CGE to sectoral models would be required to obtain estimates of these phenomena. Not clear to us how a CGE model would help relative to a sectoral model alone? Also, discuss spatial resolution and interactions relevant to welfare but since this section is about sectoral impacts, does this imply that PE appropriate in these cases?
    b. Income distribution (p. 70-71) – no mention of one-way linked approaches discussed in the white paper, though page 90 (lines 24 – 29) seems to suggest this is acceptable approach?
    c. Section 5.5.2 (p. 81) asks about relaxing instantaneous adjustment in CGE models to examine transition costs. The charge asks about this compared to PE or other approaches for approximating transition costs. Given the tone of the draft response, it appears that CGE models are not the right tool. Does this imply that a PE or bottom-up approach would be an acceptable way to estimate these costs at this time?

(2) International competitiveness effects:
    a. Clarification on p. 73 lines 31-32 – modeling firm heterogeneity is referred to as frontier of trade modeling; likewise, draft states it is not clear trade impacts will be that different across structures (Armington v Melitz) for non-carbon regulations. For these reasons, it would be useful to be more explicit in the recommendation itself. Right now it says near to long term (which is it?) EPA should consider moving beyond Armington and perfect competition. In which circumstances?
    b. This also applies to 5.2.3 – since other responses indicate it is not always a concern explicitly restating when is it - or is not – warranted would be useful.

(3) Labor impacts under full employment closure –charge question asks what types of labor impacts can be credibly identified and assessed in a CGE model with full employment.
    a. The draft response does a very nice job of identifying the types of impacts that should not be identified from a CGE model.
    b. Lines 34-35 seem to suggest that expressing results as a change in quantity of labor or in hours worked is the right way to represent CGE model results but it would be useful for the panel to explicitly affirm this is the case in the response.

(4) Section 5.6 is a very careful nuanced discussion of various economy-wide alternative to CGE – our read of it is that it doesn't really endorse any of the alternatives to CGE. However, the summary (5.6.6) seems somewhat inconsistent with this discussion.

   a. e.g. macro-econometric models suffer from Lucas critique and EPA does not forecast; it would follow that they probably are not appropriate for analyzing the effects of regulation?
   b. Hybrid models are promoted as alternatives in the summary but the discussion in 5.6.4 focuses fairly exclusively on REMI and seems to suggest it would not be suitable for an analysis of national regulations?

(5) Usefulness of CGE models when benefits are partially or not represented - Draft responses seem potentially inconsistent
   a. P. 65 (section 4.10) – states that if benefit measures are incomplete, full consistency between the model and the economy cannot be achieved. However, this does not imply that such a model lacks informational value….
   b. P. 92 – says that even if non-market externalities are not estimated in the CGE model economy wide approach can still yield useful information for cost effectiveness analysis
   c. P. 94 –says that non-separability in some production relationships generates important feedback effects inside and outside of markets, which can affect costs by changing relative prices. As a result, draft argues any effort to define a GE cost measure becomes arbitrary and thus we would question the merits of results derived from such a strategy.

(6) Proprietary data and models – definitions are not always consistent with the way EPA guidance currently defines these terms
   a. EPA guidance defines a proprietary model as "a computer model for which source code is not universally shared" (See https://www.epa.gov/modeling/guidance-document-development-evaluation-and-application-environmental-models. In particular, see the definition of proprietary on page 31: "This guidance defines proprietary models as those computer models for which the source code is not universally shared." Section 4.3, which begins on that page also notes that "EPA prefers using nonproprietary models when available. However, the Agency acknowledges there will be times when the use of proprietary models provides the most reliable and best-accepted characterization of a system." It then outlines the type of documentation that should be made available if a proprietary model is used. In addition, page 24 states: "Models used for secondary applications (existing EPA models or proprietary models) will generally undergo a different type of evaluation than those developed with a specific regulatory information need in mind. Specifically, these reviews may deal more with uncertainty about the appropriate application of a model to a specific set of conditions than with the science underlying the model framework."

b. EWM Panel's definition on p. 75 "public access to model and its source code" is consistent with its counterpart, a non-proprietary model
c. EWM Panel's definition on page 97 is probably not (states that proprietary models are those for which access are restricted and will not be made available to the public at any reasonable price)
d. Charge question itself notes EPA guidance, that there are cases where a non-proprietary alternative is not available. Guidance recommends that EPA to use models that provide the most reliable and best accepted characterization of a system and the footnote in the charge points to the type of documentation that should be made publically available when using proprietary models.
e. Interpretation of EPA guidance (p. 24-25) on whether proprietary models meet information quality standards does not seem consistent with EPA model use guidance (same document referenced above), which allows for a different process to evaluate the appropriateness of proprietary models
f. May be useful to distinguish between proprietary data and proprietary models since non-proprietary models often still rely on proprietary data. P. 24, line 39 combines them.