

Response to pages 19-24 of Paul Chernick's testimony before the CPUC in Rulemaking 12-06-2013 filed on September 15, 2014

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Paul Chernick has filed [testimony](#) before the California Public Utilities Commission on increasing-block pricing (IBP). In his testimony, he references work done by me and to separate work done former U.C. Berkeley Ph.D. student [Koichiro Ito](#) (now an assistant professor at Boston University's School of Management). I was the chair of Professor Ito's 2011 dissertation committee.

In 5 pages that refer to my work and that of Professor Ito, Mr. Chernick's testimony makes a number of factual and analytical errors. I feel it is important to correct the record with regard to his errors.

1. Mr. Chernick mistakenly describes my 2009 draft paper as releasing preliminary results from Ito's work. Mr. Chernick apparently did not read that draft paper very closely. My 2009 draft paper is in no way a preliminary version of Ito's work. I use a different sample of customers, a different estimation technique, and different time periods. Though both papers address the question of the impact of increasing-block pricing, the approaches are quite distinct, as would be clear to any impartial reader both papers.
2. Mr. Chernick uses my draft paper as evidence that econometric estimation cannot provide reliable estimates of the response of consumers to prices. (Though one wonders how Mr. Chernick came to his gut instinct range of price elasticities of -0.1 to -0.3 if not from statistical analyses that use econometrics.) In reality, of course, econometrics is a tool that can be used well or poorly. And research designs can be successful or unsuccessful. The draft paper of mine that Mr. Chernick cites is an example of a research design that, at least thus far, has not been successful. It was not successful in that it did not yield consistent findings when I examined the data in many different ways and using different subsamples with this approach. This suggests that the approach I was taking was not yielding empirical conclusions that could be relied upon. **This is why the DRAFT paper Mr. Chernick cites was never released as an Energy Institute working paper and was never submitted for publication.**
3. Professor Ito, however, took a different, and very ingenious approach, that allowed him to compare extremely similar customers who faced different changes in their electricity rates. No one has had the opportunity to do a truly randomized control trial (RCT) in which customers are randomly chosen to be given different increasing-block rates, so Ito's approach is the closest any work on utility rate effects has come to that RCT gold standard. Ito's approach yields consistent results that are robust to many different ways of examining the data and to different subsamples. That is why [Ito's paper](#) has now been published in the *American Economic Review*, the flagship journal of the American Economics Association and one of the top outlets for publication of economic research.

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4. Mr. Chernick mistakenly states that Professor Ito's work suggests customers do not respond to tiered rates. It is unclear to me how someone who has actually read Ito's work could possibly believe this. The paper shows that customers *do* respond to tiered rates. It asks – and does by far the most convincing job of answering – the question of *how* customers respond to tiered rates? In particular, do customers optimize precisely on the marginal rate they face, or do complicating factors -- such as limited attention and uncertainty about the tier their consumption will end up on at the end of the month – cause them to respond to a simpler price signal, the average price they face (or equivalently, the total bill they pay given the amount of electricity they've consumed).
5. Distinguishing whether customers respond to average or marginal price would be very difficult to do in most situations (including the research design in my draft paper, which ultimately was not successful in distinguishing these effects), but Professor Ito's ingenious and creative research design allows it to be done – for the first time -- in a convincing way. He finds that customers are much more accurately characterized as responding to average than to marginal price. But – and this is important given Mr. Chernick's mischaracterizations – Ito's work definitely finds that customers respond to increasing-block pricing, because the average price changes as a customer consumes more under IBP. Ito's paper concludes that customers exhibit a medium to long-run elasticity of about -0.1 to the average price they face.
6. Why does it matter whether customers respond to average or marginal price? Compared to a constant electricity price, IBP lowers the price for some kilowatt-hours (for lower quantities of consumption during the billing period) and raises the price for other kilowatt-hours. If customers respond to marginal price, it is possible that the IBP structure can lead to an overall decrease in the aggregate consumption of residential customers. But if customers respond to average price, Professor Ito shows that the lower price for some kilowatt-hours counterbalances the higher price for other kilowatt-hours. When customers respond to average price, the net effect on aggregate consumption is about zero.
7. Mr. Chernick then tries to dismiss Professor Ito's results by giving multiple explanations for why customers might not respond to marginal price. But all of his explanations – (a) they truly don't respond, (b) they don't pay attention to exactly what tier they are on, or (c) they were not able to fine tune their consumption within the billing period – are consistent with customers responding to average rather than marginal price in general. And if that is the case, IBP will not lower aggregate consumption compared to a revenue-neutral flat electricity price.
8. Mr. Chernick argues that Professor Ito's results should be dismissed because his sample includes the California electricity crisis. This is an interesting point, though I would think that people would have been more aware of electricity price schedules and more responsive to them around the electricity crisis. Thus, dropping the electricity crisis period would strengthen Ito's results. I contacted Professor Ito and he told me that he did indeed do the analysis dropping the electricity crisis period, though that was one of the many robustness checks he did that did not make it into the published version of the paper. He reports that "I did the analysis by excluding the electricity crisis period and found the same results for marginal vs average, with slightly less elastic estimates for the price elasticities." In other words, dropping the electricity crisis would, if anything, make Ito's results a more compelling argument against increasing-block pricing.

9. Mr. Chernick makes one point with which I agree: that Professor Ito's sample may not be completely representative. In order to achieve the precise comparison that allows Ito to make the fine distinction between marginal-price response and average-price response, he had to narrow the sample to just customers living within one mile of the SCE/SDG&E border. The sample is still plenty large enough to reach robust statistical conclusions about this sample of customers, but it may not be representative of all customers. In particular, the residents of the studied area are somewhat wealthier, better educated and older than national average. It is not obvious that this would lead to over- or under-estimates of the precision with which people respond to marginal price, but in any case it would be great to have more near-gold-standard studies of this question. The reality is that we don't. Ito's work – which has been recognized as excellent research at the highest level of the economics profession – is the best information we have today on the impact of IBP on residential consumption. And that research says that IBP does not lead to a net reduction in the total consumption of households.