Comments on Krueger and Perri:
“On the Welfare Consequences of the Increase in Inequality in the United States”

Kjetil Storesletten
University of Oslo, IIES and CEPR

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1 Introduction

This paper addresses the welfare consequences of the increase in inequality in the United States during the last three decades. By now, it is well established that since 1970’s there has been a substantial increase in inequality in wages and earnings. The focus of the empirical literature has been to decompose this rise in inequality into transient and permanent components. The motivation for this focus is that permanent shocks presumably have large welfare consequences, while transient shocks are regarded as (self-) insurable. However, this link between earnings and welfare implicitly requires assumptions about market structure and exclude risk sharing devices that do not show up in wages or labor income (such as e.g. in-kind transfers or means-tested price rebates).

Krueger and Perri pursue a different approach for quantifying the welfare costs of rising inequality, noting that welfare is not derived from income and wages, but rather from consumption and leisure. In particular, Krueger and Perri ask the following two questions; (i) how has inequality in consumption and leisure evolved?, and (ii) what are the welfare consequences of these changes?

I am very sympathetic to Krueger and Perri’s idea of exploring the effects
of rising inequality by putting more emphasis on allocations of consumption and leisure, and I believe it is a promising research program.

Extending previous work (Krueger and Perri, 2002, and Fernandez-Villaverde and Krueger, 2003), Krueger and Perri document (i) using data from the Consumption and Expenditure Survey (CE). They then proceed to assess the welfare consequences, presenting a novel approach for this end. In this discussion I compare some of their findings with facts from alternative data. I then discuss two alternatives to Krueger and Perri’s approach for evaluating the welfare consequences of the rising inequality. Krueger & Perri (2002) Fernández-Villaverde & Krueger (2002)

2 Revisit facts using alternative data: PSID

The data set that Krueger and Perri uses, CE, focuses on consumption, and data on earnings and hours are, arguably, of lower quality than in e.g. the Panel Study of Income Dynamics (PSID) or in the Current Population Survey (CPS). However, Krueger and Perri document that the implications for wage inequality are comparable in the CE and other data sets (PSID and CPS).\(^1\)

\(^1\)Krueger and Perri argue that earnings inequality increases slightly less than wage inequality. However, if inequality is measured as the variance of log of earnings (instead
Using data from the PSID and CPS, Heathcote et al. (2003) document that hours inequality for men (excluding non-participants) has remained constant or experienced a small increase during this period. In contrast, Krueger and Perri find that inequality in hours per adult (i.e., average hours within the household) has declined over time.

One possible reason for this difference could be that even if all workers worked the same number of hours, changes in labor force participation (e.g. from one to two earners) would induce changes in hours inequality. Thus, the rise in female labor force participation may have caused the decline in hours inequality, due to an increase in the average number of hours worked for women. Indeed, it is hours worked for married women that have increased during this period.\(^2\)

\(^2\)Using data from the CPS, Jones et al. (2003) document that while average hours worked for single men and women was relatively constant over this period, hours worked for married women rose sharply.
3 Welfare effects of rising inequality

Given facts on evolution of consumption and hours inequality, Krueger and Perri examine the distribution of welfare effects of changes in inequality, conditional on initial state. To this end, they propose a novel, theory-free approach. They start by estimating an exogenous stochastic process for individual household consumption and leisure, exploiting the panel-dimension in the CE data.\(^3\) The data are detrended, so that the welfare effects of changes in the process are due to changes in the higher-order moments only. They then assume a time-separable utility function over consumption, consumer durables, and leisure, \(u(c, s, l) = \frac{1}{1-\sigma} \left[ \left( c^\theta s^{1-\theta} \right)^\sigma l^{1-\alpha} \right]^{1-\sigma}, \) and compute discounted utility given the time-varying processes for consumption and leisure.

The large dispersion in welfare effects are mainly driven by changes in between-group inequality and are hardly affected by changes in within-group inequality. One reason for this is that, conditional on group, the estimated processes for consumption and leisure are not very persistent (for example,

\(^3\)Note that it is not the transition process between actual consumption levels that is estimated, but the transition probabilities between different consumption classes. This approach underestimates the consumption inequality and, in particular, the change in consumption inequality.
holding group-specific characteristics constant, the autocorrelation of individual consumption is 0.72, lower than the autocorrelation for earnings).

This finds points, I believe, to a potential shortcoming of the Krueger-Perri approach. Assume that preferences are separable between consumption and leisure. The permanent income hypothesis then suggests that the marginal utility of consumption and, therefore, consumption itself should be very persistent. Why don’t the data have this property? It could of course be that preferences are not separable between consumption and leisure. However, there are good reasons to believe that the estimated persistence of consumption is biased downwards due to measurement error. For example, Cogley (2002) suggests that measurement error in CE consumption biases upwards the variance in individual consumption growth by one order of magnitude). Clearly, if the Krueger-Perri consumption process were mis-measured, it would cast some doubt on their quantitative welfare findings.

4 Alternative route A: a theory-free approach

If one is to pursue a data-based theory-free approach, why is it necessary to estimate a process for consumption and leisure instead of simply plugging
in the actual data? In the spirit of Atkinson (1970), one could alternatively address the following welfare question: Under the “veil of ignorance”, what fraction of initial consumption would agents give up to get that allocation forever, relative to experiencing the subsequent evolution of inequality in consumption and leisure? Assuming that preferences are time-separable, it is only the dispersion in consumption and leisure that matters, and movements within the distribution are irrelevant. Thus, one could simply plug in the actual data observations and discount utility, given explicit assumptions about the utility function.

Pursuing this approach with the same data and utility function as Krueger and Perri used, the welfare loss, expressed as a fraction of lifetime consumption, are as follows:\(^4\)

<table>
<thead>
<tr>
<th></th>
<th>$c$ only</th>
<th>$(c, l)$</th>
<th>$(c, s, l)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sigma = 1$</td>
<td>1.57%</td>
<td>1.48%</td>
<td>1.43%</td>
</tr>
<tr>
<td>$\sigma = 2$</td>
<td>2.54%</td>
<td>2.15%</td>
<td>1.94%</td>
</tr>
</tbody>
</table>

The first column refers to welfare effects of the changes in inequality of

\(^4\)The figures display the welfare loss of the changes in inequality after 1980 since the 1972-73 CE data include less consumption items than the 1980-2000 data, and are therefore not directly comparable.
non-durable consumption. The second and third columns add leisure and services from consumer durables. The key message of this table is that the average welfare loss is around 1-2%, which is in the same ballpark as the findings of Krueger and Perri.

5 Alternative route B: a structural approach

The most serious critique of the Krueger-Perri approach is perhaps that the preferences are arbitrary in that they are not necessarily consistent with the observed individual behavior. For example, the preferences considered by Krueger and Perri exhibit quite high individual labor elasticity (unity for $\sigma = 1$ and $2/3$ for $\sigma = 2$). Moreover, there are reasons to believe that the costs of changing inequality has been unevenly distributed across generations, with the young in 1980’s shouldering the largest burden, an aspect absent in the infinite-horizon approach of Krueger and Perri.

An alternative route, robust to this criticism, would be to pursue a structural approach for quantifying the welfare costs. In particular, one could use an individual-specific wage- or earnings-process as a primitive, generate endogenous consumption and leisure allocations from a structural model, and
subsequently, use these to evaluate welfare consequences.

One paper pursuing this route is Heathcote et al. (2003). They estimate changes in the individual wage process in the US using PSID data, and document increases in the transitory, persistent, and permanent components of the wage process. They then formulate a standard life-cycle version of the permanent income hypothesis model with saving in one riskless bond and a consumption-leisure trade-off. The preferences are of the constant elasticity of substitution type and separable in time and between consumption and leisure. Their model is calibrated to capture key cross-sectional facts, resulting in quite plausible parameters (for example, the Frisch elasticity is 0.5 and the relative risk aversion for consumption is 1.5). This model accounts for salient features of evolution in inequality, such as the evolution of the wage-hours correlation and the inequality in earnings, consumption and hours. The fact that the preferences are consistent with the observed individual behavior, makes the welfare calculation (including the particular utility function) less arbitrary, I believe.

Turning to welfare, Heathcote et al. (2003) find that under the veil of

\[^5\text{In particular, they match the standard deviation of changes in individuals' number of hours worked and the correlation between wages and hours worked.}\]
ignorance but conditional on cohort, the welfare loss of changes in wage process is 2-3% of lifetime consumption for households entering job market during 1970-1990, and around 1% for households entering job market during 1950’s and after 2000.\footnote{The preference parameters used by Heathcote et al. (2003) differ from the Cobb-Douglas specification of Krueger and Perri that I used in Section 4. Repeating those calculations with the parameters of Heathcote et al., the CE data indicate a welfare loss of 1.9%.
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References


