Generational Wealth Accounts

David McCarthy, James Sefton, Ron Lee & Joze Sambt

University of Georgia
Imperial College Business School
University of California, Berkeley
University of Ljubljana

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What are GWA?

• A logical extension of National Transfer Accounts (NTA) (Lee & Miller, 2011)
  – NTA provide a snapshot of the inter-generational transfers that occur in a given population over a given period, whether mediated by families, the public sector or capital markets
  – If we project these forward, and capitalize them, we can compare implied wealth estimates with national balance sheets, to:
    • Analyze transfers longitudinally, rather than just cross-sectionally
    • Integrate wealth fully into the NTA framework
    • Learn something about sustainability and equity of transfer systems in the face of demographic change
  
  • A broadening of Generational Accounting (GA) (Auerbach, Kotlikoff and Gokhale, 1991)
  – GA only focuses on the public sector, but the private sector is also important (Ricardian equivalence, Samuleson, 1958)

• Provides a comprehensive measure of individual portfolios (Merton, 1971)
• Start with NTA per-capita profiles in a given year (2012)

• Project these forward, using demographic projections and assumptions about productivity and consumption growth and fiscal changes (if incorporated), adjust to balance, discount and sum for each cohort
... and incorporates inter-temporal budget constraints

- Public-sector aggregate inter-temporal budget constraint (GA):
  \[
  D_0 + \sum_{k=-\infty}^{\infty} \sum_{t=0}^{\infty} (1+r)^{-t} N_{k,t} \left( \tau_{k,t}^{+} - \tau_{k,t}^{-} \right) = FS_{0}^g
  \]
  - Public Sector Net Liability
  - P.V. of Net Public Transfers
    (Deficit)

- Private sector inter-temporal budget balance for each generation:
  - Present value of resources = Present value of uses
  \[
  \sum_{t=0}^{\omega+k} N_{k,t} y_{k,t} (1+r)^{-t} + N_{k,0} W_{k,0} + \sum_{t=0}^{\omega+k} N_{k,t} \tau_{k,t}^{+} (1+r)^{-t} + \sum_{t=0}^{\omega+k} N_{k,t} b_{k,t}^{+} (1+r)^{-t} + FS_{k,0}^p
  \]
    - Human Capital
    - Net Wealth
    - P.V. of Transfers Received
    - P.V. of Bequests Received
    - Private Funding Shortfall
  \[
  = \sum_{t=0}^{\omega+k} N_{k,t} c_{k,t} (1+r)^{-t} + \sum_{t=0}^{\omega+k} N_{k,t} \tau_{k,t}^{-} (1+r)^{-t} + \sum_{t=0}^{\omega+k} N_{k,t} b_{k,t}^{-} (1+r)^{-t}
  \]
    - P.V. of Total Consumption
    - P.V. of Transfers Paid
    - P.V. of Bequests Paid
  - In our theoretical framework, bequests are a balancing item for each generation, but must sum to zero across all generations for sustainability
  - Both public and private sectors must be in balance for whole economy to be in balance
# Aggregate GWA: UK 2012

<table>
<thead>
<tr>
<th>Year of birth</th>
<th>Pop (mn)</th>
<th>Private resources</th>
<th>Transfers received</th>
<th>Net beq. rec.</th>
<th>Private Funding Gap</th>
<th>Public Funding Gap</th>
<th>TOTAL</th>
<th>Consumption</th>
<th>Transfer made</th>
<th>Net beq. made</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Year of Birth)</td>
<td>Human capital</td>
<td>Assets</td>
<td>Public</td>
<td>Prvte</td>
<td>PUBLIC</td>
<td>PRVTE</td>
<td>PUBLIC</td>
<td>PRVTE</td>
<td>PUBLIC</td>
<td>PRVTE</td>
<td>PUBLIC</td>
</tr>
<tr>
<td>90+ (Pre-1922)</td>
<td>0.51</td>
<td>0</td>
<td>116</td>
<td>45</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>165</td>
<td>27</td>
<td>25</td>
<td>10</td>
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<tr>
<td>80-89 (1923-1932)</td>
<td>2.46</td>
<td>3</td>
<td>642</td>
<td>372</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>1 047</td>
<td>210</td>
<td>216</td>
<td>87</td>
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<tr>
<td>70-79 (1933-1942)</td>
<td>4.52</td>
<td>14</td>
<td>1 492</td>
<td>959</td>
<td>108</td>
<td>0</td>
<td>0</td>
<td>2 572</td>
<td>497</td>
<td>663</td>
<td>279</td>
</tr>
<tr>
<td>60-69 (1943-1952)</td>
<td>6.97</td>
<td>256</td>
<td>2 788</td>
<td>1 755</td>
<td>348</td>
<td>0</td>
<td>0</td>
<td>5 146</td>
<td>859</td>
<td>1 559</td>
<td>737</td>
</tr>
<tr>
<td>50-59 (1953-1962)</td>
<td>7.92</td>
<td>1 460</td>
<td>2 831</td>
<td>2 002</td>
<td>483</td>
<td>0</td>
<td>0</td>
<td>6 777</td>
<td>1 008</td>
<td>2 313</td>
<td>1 370</td>
</tr>
<tr>
<td>40-49 (1963-1972)</td>
<td>9.25</td>
<td>3 444</td>
<td>1 884</td>
<td>2 365</td>
<td>595</td>
<td>0</td>
<td>0</td>
<td>8 288</td>
<td>1 186</td>
<td>3 156</td>
<td>2 298</td>
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<tr>
<td>30-39 (1973-1982)</td>
<td>8.28</td>
<td>4 197</td>
<td>680</td>
<td>2 215</td>
<td>558</td>
<td>258</td>
<td>0</td>
<td>7 908</td>
<td>1 044</td>
<td>3 105</td>
<td>2 386</td>
</tr>
<tr>
<td>20-29 (1983-1992)</td>
<td>8.65</td>
<td>4 996</td>
<td>156</td>
<td>2 385</td>
<td>600</td>
<td>645</td>
<td>0</td>
<td>8 782</td>
<td>1 121</td>
<td>3 540</td>
<td>2 616</td>
</tr>
<tr>
<td>10-19 (1993-2002)</td>
<td>7.5</td>
<td>3 915</td>
<td>2</td>
<td>2 171</td>
<td>883</td>
<td>638</td>
<td>0</td>
<td>7 609</td>
<td>1 194</td>
<td>3 217</td>
<td>2 084</td>
</tr>
<tr>
<td>0-9 (2003-2012)</td>
<td>7.64</td>
<td>2 889</td>
<td>0</td>
<td>1 968</td>
<td>1 278</td>
<td>463</td>
<td>0</td>
<td>6 598</td>
<td>1 244</td>
<td>2 882</td>
<td>1 652</td>
</tr>
<tr>
<td>Unborn</td>
<td>8 035</td>
<td>0</td>
<td>5 994</td>
<td>4 333</td>
<td>3 346</td>
<td>-2 061</td>
<td></td>
<td>19 648</td>
<td>3 980</td>
<td>8 664</td>
<td>4 738</td>
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<tr>
<td>Public sector net liability</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Net Public Transfers Deficit</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of which: transfers between living and unborn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>29 209</td>
<td>8 962</td>
<td>22 231</td>
<td>9 219</td>
<td>5 350</td>
<td>-2 061</td>
<td></td>
<td>5 601</td>
<td>78 513</td>
<td>12 370</td>
<td>29 341</td>
</tr>
</tbody>
</table>
How uses and resources change over the generations

90+

The old have more resources – assets + pensions – than they need to support consumption

They are net bequestors

50-59

The middle-aged rely to a greater extent on human capital, but resources still exceed uses

They are net bequestors

20-29

The young have almost no assets, large human capital and uses exceed resources

They are net bequestees
Flows down the generations

Bequests

- Estimate that of the £10.5tn held in assets, £5tn (~45%) to be bequeathed
- £2tn of this will be needed to support current living generations, £3tn to be bequeathed to the unborn
Flows down the generations
Inter- and intra-household private transfers

- Private transfers are also predominantly down the generations
- The young are significant beneficiaries of these transfers (roughly £80k net per child)
- Living are transferring £2tn to the unborn through *inter vivos* transfers
- Private sector is sustainable and total private transfers to the unborn are £5.4tn (including bequests and private *inter vivos* transfers), of which the unborn will need only £3.4tn to sustain their consumption paths
• Public transfers predominantly flow up the generations (pensions, health)
• Currently *deficit* of present value of net transfers to living from living is £2.7tn; this is left to unborn
• Government debt (in 2012) including unfunded government occupational pensions was £1.6tn
• Projected *deficit* of present value of net transfers to unborn from unborn is £1.3tn. Public sector is not sustainable, with a total deficit of £5.6tn
Private sector £2tn in surplus, public sector £5.6tn in deficit
Together there is a shortfall in £3.6tn => current consumption plans are not sustainable
All generations must reduce total consumption by 8.5%
Or if the unborn bear it all then they must reduce total consumption by 28%

<table>
<thead>
<tr>
<th>Public sector explicit and implicit debt and private inter vivos transfers and bequests passed to unborn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability measure S1</strong> (shortfall measured across living and unborn)</td>
</tr>
<tr>
<td>Public shortfall</td>
</tr>
<tr>
<td>Base case</td>
</tr>
<tr>
<td>OBR ‘Austerity’</td>
</tr>
</tbody>
</table>
Intergenerational equity

• Our measure of sustainability is also a measure of intergenerational equity (if you assume that the unborn pick up any imbalance – this is the basis of the AGK measure used in GA)
  – An unsustainable path cannot be equitable if unborn are assumed to make all the adjustments to ensure inter-temporal balance
• An alternative measure of intergenerational equity is based on the concept of Generational Solidarity (GS), viewed from the perspective of the unborn
  • A thought experiment: would the young be better off if ALL transfers between the living and the unborn were turned off, or would they be better accepting the transfers (positive and negative) from the living and picking up the tab?
  • To do this, need to examine aggregate transfers between the living and the unborn
• Yet another measure is the Generational Golden Rule (GGR) measure; we leave that to further work
Private sector *inter vivos* transfers and bequests to unborn are greater than the public sector transfer deficit and existing public sector debt transferred *from* the unborn.

On this measure, the unborn are (just) **better off sticking with us**.

(This analysis excludes transfers of natural resources, language, culture, and, importantly, time.)
Comparison with the US* (2011)

US consumption at older ages higher relative to labour income than in the UK, but assets per individual around the same

GA: as per IMF (2011)

Private sector: not sustainable

* US values are provisional
Conclusion

• UK private sector is in surplus, public sector in deficit, aggregate UK consumption plans are unsustainable
• ‘Austerity’ would have reduced the public sector deficit (and the private sector surplus), bringing aggregate consumption plans into (rough) balance
  • But imbalance between private and public sector remains (as shown by public and private sector GA’s)
• Under AGK measure, unborn are being treated inequitably, BUT
• Under GS measure, unborn are still better off accepting transfers from living than they would be if they rejected these and needed to bring their own consumption paths into long-run balance
  • (But if the living pass all adjustment costs onto the unborn, it’s a close call!)
• GGR measure to be determined
• US situation seems to be clearer: Aggregate assets appear insufficient to sustain projected aggregate consumption paths