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for Self-employed and Employees from German Income Tax Microdata 1992 to 2003

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# The Top of the Distribution – Evidence and Some New Richness Measures for Self-employed and Employees from German Income Tax Microdata 1992 to 2003

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## Introduction

Many studies on the distribution of income focus on its lower tail: the poor. The rich, however, are rarely analyzed. As to many other arguments to be interested in the top income distribution (Atkinson 2007), "the game is worth the candle" since e.g. the top 10% (1%) of the 2003 German taxpayers pay 50,6% (19,7%) of all income taxes.

Based on our contributions to the first two German Federal Poverty and Richness Reports (Merz 2001, Merz, Hirschel and Zwick 2005) this study is about the income rich featuring

- Top income and overall distribution evidence
- Self-employed (as professions and entrepreneurs), and employees
- Exceptional new microdata base: The German Income Tax Statistics
- New richness measures combining quantity, intensity and income distribution of the rich
- Sound results about the actual situation and the development from 1992 to 2003

Main result: the rich are getting richer, in particular the very rich. A different picture for self-employed and employees, and a different picture within the group of self-employed for liberal professions and entrepreneurs will be evident.

JEL key words: D31, D33, I31

## Data

Though there are many microdata bases for income analyses in Germany - like the Survey of Income and Expenditures (EVS) or the Socio-Economic Panel (SOEP) - because of the survey characteristic and/or design there are problems to achieve sound results for the self-employed and for high income in particular. Our top income analysis could use the new microdata of the German Income Tax Statistics with its characteristics

- Compulsory statistic for all taxpayers in Germany (ca. 30 millions)
- Three year reporting period so far
- Microunits: taxpayer (single or joint assessment)

The German Income Tax Statistics provides the most detailed and sound information about different income sources (Einkünfte and Einkommen) and taxes of all taxpayers in Germany.

Since income analyses require a more economic than tax income concept, we consider diverse depreciations, gains (Veräußerungsgewinne) and variants according to income from let and lease individually, dimensions which are of interest for high income in particular.

### Our Microdata

- Enhanced German Income Tax Statistics (Einkommensteuerstatistik)
- Respective 10% samples of 1992, 1995, 1998, 2003 (by microsimulation) with more than 12 Million individual records
- 2003 Microsimulation is based on demographic and institutional changes

### Definitions

Income: net monthly income as gross economic income minus taxes  
Occupational status: self-employed as entrepreneurs (tradesmen) and (liberal) professions (freelancer, "Freie Berufe"), and employees from respective predominant income sources.

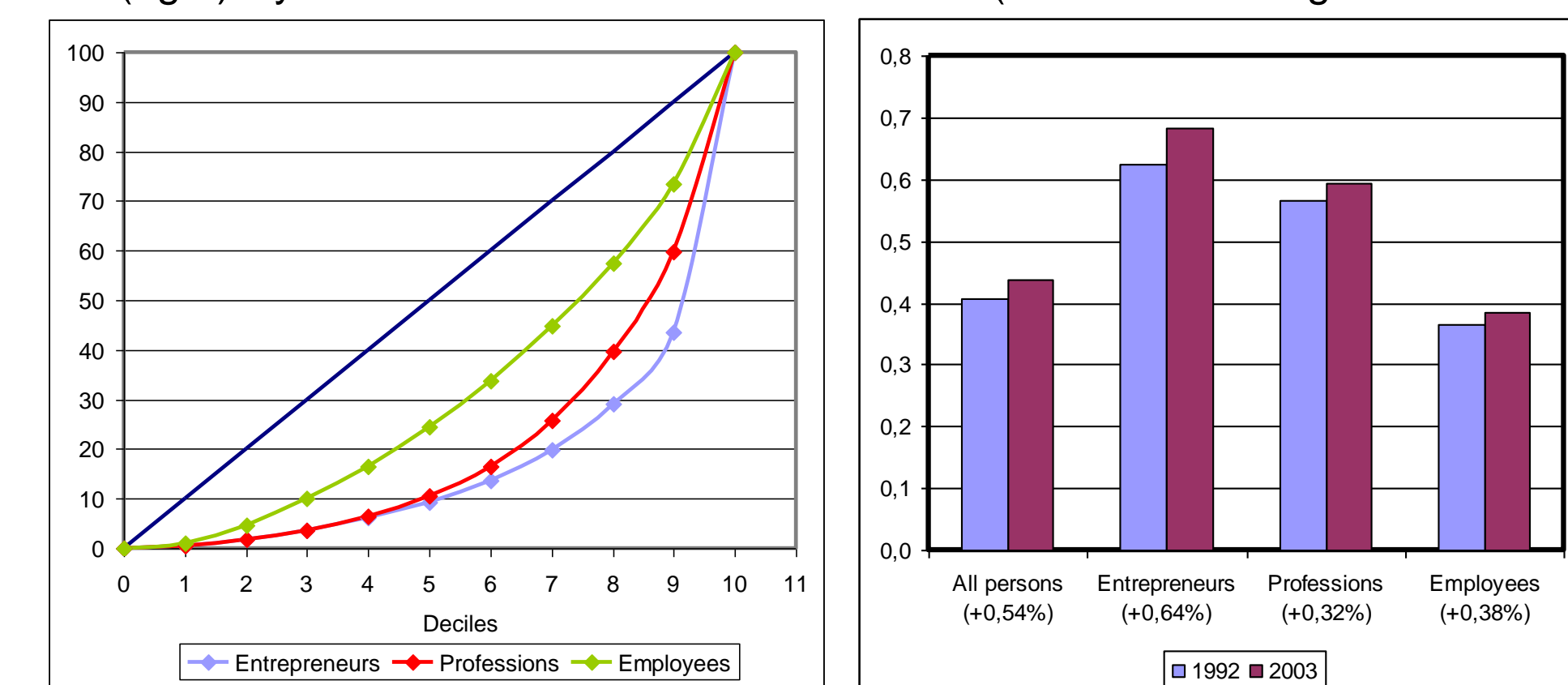
## Results

### Income Distribution 2003 and 1992-2003

Table 1. Overall Net Income Distribution 2003 by Occupational Status

|                     | All persons | Entrepreneurs | Professions | Employees  |
|---------------------|-------------|---------------|-------------|------------|
| Taxpayer share (%)  | 100,0       | 10,6          | 1,8         | 87,6       |
| Income share (%)    | 100,0       | 13,7          | 2,9         | 83,5       |
| Mean (€)            | 29.030      | 37.354        | 46.822      | 27.660     |
| Median (€)          | 22.782      | 13.752        | 21.938      | 23.518     |
| 90/10 Relation      | 36          | 97            | 85          | 27         |
| Gini (%)            | 43,8        | 68,3          | 59,3        | 38,5       |
| Decomposition Theil |             |               |             |            |
| Inequality share    | 100,0       | 40,2          | 4,3         | 55,5       |
| Within/Between      | 98,34/1,66  |               |             |            |
| Redistribution      |             |               |             |            |
| Blackburn's R (%)   | -4,2        | -5,3          | 2,8         | -3,1       |
| k (€)               | -1.684      | -3.052        | 2.061       | -1.166     |
| n                   | 2.824.195   | 778.773       | 171.881     | 1.873.541  |
| N                   | 28.310.679  | 3.006.811     | 502.852     | 24.801.016 |

Figure 1. Net Income Distribution 2003 and Dynamics by Occupational Status (left) Lorenz Curves 2003 (right) Dynamics: Gini Coefficient 1992-2003 (Brackets: Average Growth Rate)



**Entrepreneurs:** Although the average income of entrepreneurs is relatively high, the median is below employee's median. Entrepreneurs show the highest actual inequality and strongest growth of inequality 1992-2003 (Gini: +0,64%).

**Professions:** Small but important group. The average income is the highest, although the median is below employee's median. Professions show higher inequality than employee's inequality and smallest growth of inequality 1992-2003 (Gini: +0,32%).

**Employees:** The biggest subgroup has the lowest average income, the highest median, the lowest inequality and a relatively low inequality growth 1992-2003 (Gini: +0,38%).

### Top Income 2003

#### Top Income threshold question:

Plato (427-347 B.C.):

"(744b) ... there should be **four different classes** appointed according to the amount of property. The richness threshold for the highest class, which should not be passed over, should be the **fourfold value of the share in land (lot) of a citizen**; the poverty limit is the value itself which should not be diminished.

... if a person is richer, he has to commit the surplus to the state.

... the **share in land (lot) of each citizen** should be large enough to satisfy a modest household, and the **total number of shares** should be large enough to enable its possessors to build an army great enough to protect against offences and to successfully help neighbours who are unfairly attacked."

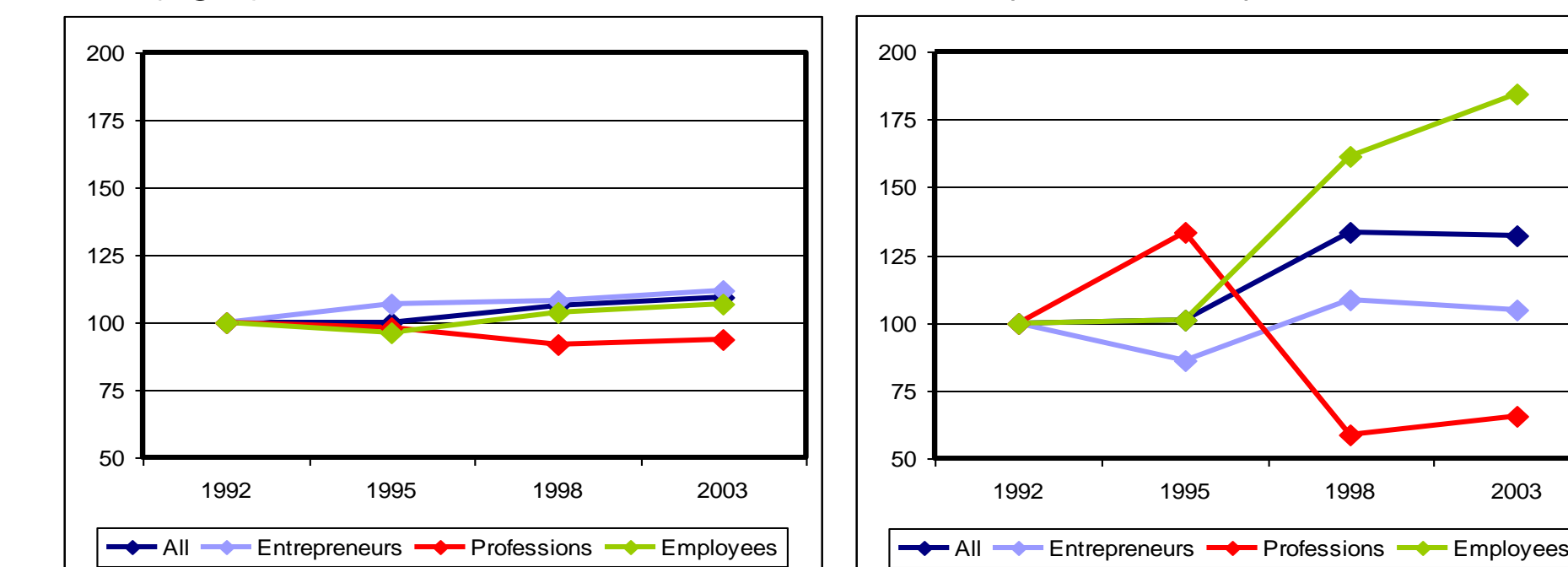
Source: Platos laws, 5th book, pp.11-14, 39, 43

Table 2. Top Income Thresholds: Population and Income Shares of the Rich by Occupational Status (Net Income 2003)

|                      | Threshold (monthly) | All  | Entrepreneurs | Professions | Employees |
|----------------------|---------------------|------|---------------|-------------|-----------|
| Population share (%) |                     |      |               |             |           |
| 200% of mean         | 4.838€              | 7,4  | 12,8          | 27,4        | 6,3       |
| Millionaires         | 83.333€             | 0,03 | 0,22          | 0,05        | 0,01      |
| Income share (%)     |                     |      |               |             |           |
| 200% of mean         | 4.838€              | 27,6 | 62,1          | 71,6        | 20,4      |
| Millionaires         | 83.333€             | 3,2  | 18,1          | 2,8         | 0,8       |
| Richest 10%          | 4.270€              | 32,5 | 65,5          | 75,4        | 25,6      |
| Richest 5%           | 5.629€              | 22,5 | 57,9          | 66,2        | 15,2      |
| Richest 1%           | 10.601€             | 10,6 | 42,4          | 35,1        | 4,6       |
| Richest 0,1%         | 36.230€             | 4,7  | 25,0          | 6,2         | 1,3       |

Figure 3. Dynamics of Top Income Shares 1992, 1995, 1998, 2003

(left) Income Shares 'Richest 10%' (1992 = 100)  
(right) Income Shares 'Richest 0,1%' (1992 = 100)



### Dynamics 1992, 1995, 1998, 2003:

The higher the income thresholds the more divergent growth of top income

**Entrepreneurs:** Increasing income shares

**Professions:** Decreasing income shares

**Employees:** Most increase of highest income shares

### New Top Income Measures

(1) SST-Top Income Index, based on the Sen-Shorrocks-Thon-Poverty Index

$$SST-R = \frac{1}{N^2} \sum_{i=1}^z (2N-2i+1) \cdot \frac{y_i - z}{y_i}$$

$$= HCR \cdot GAP \cdot (1 + G(x))$$

(2) Combined Top Income Indices

Basis: Population share (HCR), Intensity (GAP) and Concentration (G)

$$R_{ADD} = \alpha_1 \cdot HCR + \alpha_2 \cdot GAP + \alpha_3 \cdot G(x) \quad \text{with } \sum_{i=1}^3 \alpha_i = 1$$

$$R_{MULT} = HCR^{\alpha_1} \cdot GAP^{\alpha_2} \cdot G(x)^{\alpha_3} \quad \text{with } \sum_{i=1}^3 \alpha_i = 1$$

With RGR: Richness Gap Ratio

$$RGR_i = \begin{cases} \frac{y_i - z}{y_i} & ; y_i \geq z \text{ richness} \\ 0 & ; y_i < z \end{cases}$$

y: Income

z: Richness threshold

HCR: Share of 'rich' persons (Head Count Ratio)

GAP x: Average richness gap ratio (referring to the rich)

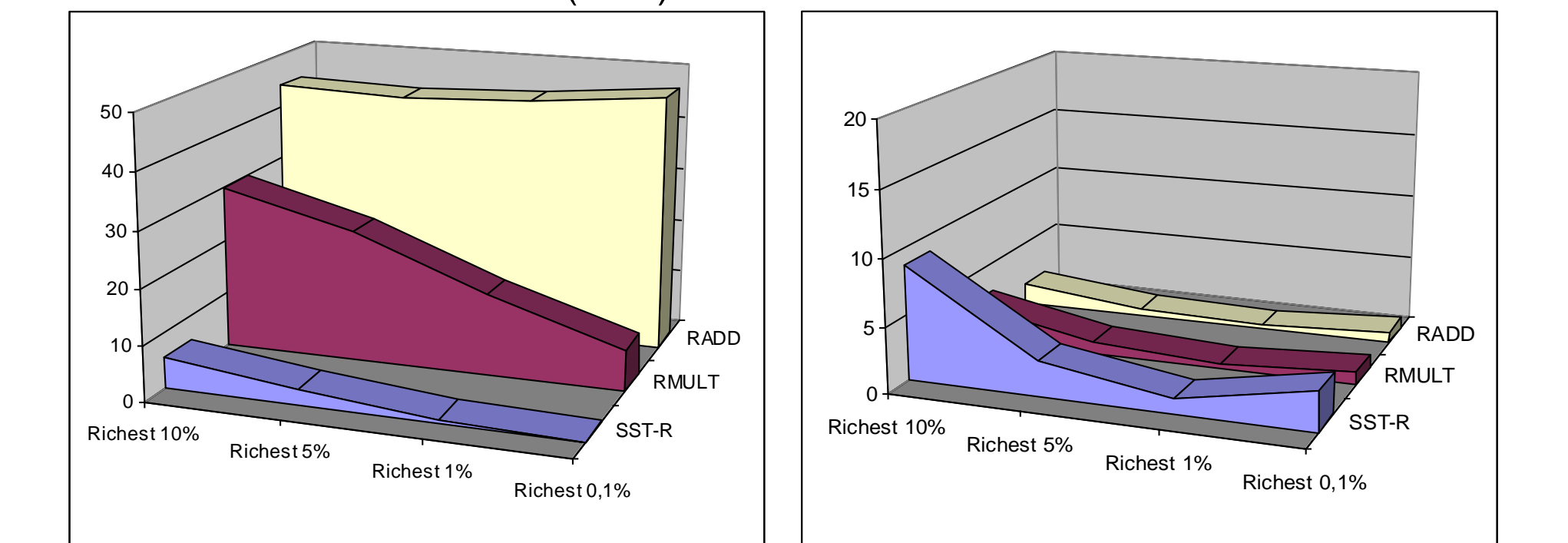
G(x): Gini coefficient of richness gap ratios (RGR)

Table 3. Top Income Measures (Net Income 2003)

|                           | Richest 10% | Richest 5% | Richest 1% | Richest 0,1% |
|---------------------------|-------------|------------|------------|--------------|
| Income Share (in %)       | 32,5        | 22,5       | 10,6       | 4,7          |
| HCR (in %)                | 10,0        | 5,0        | 1,0        | 0,1          |
| GAP (in %)                | 28,4        | 28,1       | 32,9       | 40,2         |
| G(x) (in %)               | 94,1        | 97,2       | 99,4       | 99,9         |
| Top Income Measures       |             |            |            |              |
| SST-R (in %)              | 5,5         | 2,8        | 0,7        | 0,1          |
| R <sub>ADD</sub> (in %)*  | 44,2        | 43,4       | 44,4       | 46,8         |
| R <sub>MULT</sub> (in %)* | 29,9        | 23,9       | 14,8       | 7,4          |

\*  $\alpha_1 = \alpha_2 = \alpha_3 = 1/3$

Figure 4. Dynamics of Combined Richness Measures (Net Income) (left) 2003: SST-R, R<sub>ADD</sub> and R<sub>MULT</sub> by top income thresholds (in %) (right) 1992-2003: Growth SST-R, R<sub>ADD</sub> and R<sub>MULT</sub> by top income thresholds (in %)



**2003:** For SST-R and R<sub>MULT</sub>, higher top income thresholds are linked with a lower overall indication (because of multiplying by HCR). In contrast R<sub>ADD</sub> shows an increasing indication of richness for higher top income thresholds.

**1992-2003:** All three Combined Richness Measures indicate increasing richness from 1992-2003 with some u-shape picture from the richest 10% to the richest 0,1%.

## Conclusions

### Overall Inequality:

- Self-employed show the highest actual inequality
- entrepreneurs have the highest growth of inequality
- professions have the lowest growth.

### Top Income Actual:

- Self-employed actual show the highest top income population and income shares..
- Intensity of richness: the higher the top income threshold the higher the richness intensity: entrepreneurs most professions second employee third.

### Top Income Dynamics 1992-2003:

- Richness is growing 1992 to 2003 but not for professions.
- In particular the very rich increased their income
- The higher the income thresholds the more divergent growth of top income  
→ Employees with most increase of highest income shares

### New Top Income Measures:

- All measures indicate an increasing importance of richness.
- R<sub>ADD</sub> in particular does not overstate the small number of the very rich head count ration.

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