Lost in Progressivity:
Evidence from the Personal Income Tax in Italy

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Personal Income Tax (PIT) - (IRPEF – Imposta sui redditi delle persone fisiche) provides about 40 per cent of total revenues (Ministry of Economy and Finance, 2023)

Art. 53 – Constitution “Every person shall contribute to public expenditure in accordance with their capability. The tax system shall be progressive”.

Need for tax reform

i. **Law n. 111/2023 – Delegation to the Government for Tax Reform**
   Article 5 - **Guiding principles and criteria for the revision of the Personal Income Tax System**
   Revision and gradual reduction of the PIT, while respecting the **principle of progressivity** and in view of the transition of the system to a **single tax rate**

ii. **Law n. 213/2023 – Budget Law for 2024**
   Changes in the combination tax brackets-tax rates
   Intervention valid only for 2024

<table>
<thead>
<tr>
<th>Income brackets</th>
<th>IRPEF 2023</th>
<th>IRPEF 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 15,000 €</td>
<td>23%</td>
<td><strong>23%</strong></td>
</tr>
<tr>
<td>Between 15,000 € and 28,000 €</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Between 28,000 € and 50,000 €</td>
<td>35%</td>
<td><strong>35%</strong></td>
</tr>
<tr>
<td>Over 50,000 €</td>
<td>43%</td>
<td>43%</td>
</tr>
</tbody>
</table>

→ ... **No indication of intervention in the tax base**
Our study

**Personal Income Tax**

- Main source of **progressivity** in the Italian tax system (Bank of Italy, 2021)
- Weaknesses, critical issues and controversies in the structure of IRPEF → **inefficient instrument** to achieve redistribution (Pedone, 1973; Forte, 2016)
- Original provision of a **Comprehensive Income Tax** (CIT) – deviation from the theoretical framework and continuous exclusion of various sources of income (Pedone, 2014; Stevanato, 2021)
- Tax burden and progressivity limited mainly to two income categories: employees and pensioners (Corte dei Conti, 2021)

**Our contribution**

For the Italian case:

We assess and quantify how **the process of erosion of the tax base has impacted on the degree of progressivity** of IRPEF:

- *Cumulative effect* of exclusions from the tax base
- Role of *each component*

We compare the current system (IRPEF + withholding taxes) with:

- **Comprehensive income tax** – **progressivity by tax brackets**
- **Comprehensive income tax** – **progressivity by deduction**
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January 8, 2024

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Literature review

- Original framework (Cosciani Commission, 1962-1964) → idea of adopting a definition of the tax base as close as possible to the comprehensive income tax model (Schanz, 1896; Haig, 1921; Simons, 1938) + progressivity by tax brackets

- However
  - Introduction of IRPEF (1974) → exclusion of interest on government bonds (exempted) and of financial assets (withholding tax) → “Meritorious but illusory choice” (Pedone, 2014) – 32 tax brackets and last marginal tax rate equal to 72 per cent
  - During the years, continuous process of erosion, continuous legislative interventions of a marginal nature, and continuous proliferation of bonus and tax expenditure (Pellegrino and Panteghini, 2020; Bank of Italy, 2021, Boscolo, 2021)
  - Result → Around 80 per cent of the IRPEF tax base is composed of income from employment and pensions (Corte dei Conti, 2021)

Is IRPEF the ideal instrument in terms of redistribution and progressivity aims?

The effects of erosion → Narrowing of the application of progressivity (Bises and Scialà, 2014; Boscolo, 2021);
  - Breach of the principle of horizontal equity (Pellegrino and Vernizzi, 2011; Liberati, 2020);
  - Loss of revenue (Ministry of Economy and Finance, 2022)

→ The need for a major revision of tax design (Baldini, 2021; Stevanato, 2021)
→ ... Only then should the progressive system be reconsidered → toward the flat tax rate? (Stevanato, 2016; Baldini and Rizzo, 2020)
Methodology and data

Micro-simulation model (*EGaLiTe model, Gastaldi et al., 2017*)

**Data:** Survey on Household Income and Wealth (SHIW) – Bank of Italy – **2016**

**Sample:** 7,420 households – 16,464 individuals

**Reweighting procedure** (Deville and Sarndal, 1992; Creedy, 2003; Pacifico, 2014)

**Assumptions**
1) No tax evasion
2) No behavioural responses

**Tools**
- Gini indices pre ($G_Y$) and post tax ($G_{Y-T}$)
- Reynolds-Smolensky index $\rightarrow RS = G_Y - G_{Y-T}$
- Kakwani index $\rightarrow K = C_{Y,T} - G_Y$
- Re-ranking effect $\rightarrow R = G_{Y-T} - G_{Y-T,Y}$
- Lorenz curves
## Escape from progressivity...

<table>
<thead>
<tr>
<th>Source of income</th>
<th>Year of exclusion</th>
<th>Legislation</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial assets</td>
<td>1973</td>
<td>Law n. 601/1973 - Exclusion from progressive personal income tax</td>
<td>Withholding taxes at <strong>26 per cent</strong></td>
</tr>
<tr>
<td>Cedolare secca – rental income from residential properties</td>
<td>2011</td>
<td>Legislative Decree n. 23/2011</td>
<td>Possibility of opting for the cedolare secca regime instead of IRPEF - fully subject to the <strong>10 per cent</strong> rate for controlled rents or <strong>21 per cent</strong> otherwise</td>
</tr>
<tr>
<td>Self-employed flat-rate scheme</td>
<td>2019</td>
<td>Law n. 145/2018</td>
<td>Self-employed individuals with revenue below € 65,000 and expenses for additional work and employment below € 20,000 may opt for the scheme. <strong>Tax rate of 15 per cent</strong> on the tax base obtained by applying specific productivity coefficients</td>
</tr>
<tr>
<td>Self-employed flat-rate scheme – extension</td>
<td>2023</td>
<td>Law n. 197/2022</td>
<td>Extension of the revenue limit to € 85,000</td>
</tr>
</tbody>
</table>
Lost in Progressivity

I step: the erosion of IRPEF

Table 1 – Redistributive effects

<table>
<thead>
<tr>
<th></th>
<th>CIT</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gini pre-tax index</td>
<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
</tr>
<tr>
<td>Gini post-tax index</td>
<td>0.3938</td>
<td>0.3948</td>
<td>0.3959</td>
<td>0.3971</td>
<td>0.3986</td>
<td>0.3990</td>
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<tr>
<td>Reynolds-Smolensky index</td>
<td>0.0523</td>
<td>0.0513</td>
<td>0.0502</td>
<td>0.049</td>
<td>0.0475</td>
<td>0.0471</td>
</tr>
<tr>
<td>Average tax rate</td>
<td>0.1825</td>
<td>0.1809</td>
<td>0.1757</td>
<td>0.1739</td>
<td>0.1702</td>
<td>0.1694</td>
</tr>
<tr>
<td>Kakwani index</td>
<td>0.2374</td>
<td>0.2356</td>
<td>0.2387</td>
<td>0.2358</td>
<td>0.2370</td>
<td>0.2363</td>
</tr>
<tr>
<td>Re-ranking effect</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0011</td>
<td>0.0011</td>
</tr>
</tbody>
</table>

Source: Authors’ elaborations.

(1) CIT – interest – financial assets + proportional taxes on capital incomes
(2) CIT – interest – financial assets – cadastral value
(3) CIT – interest – financial assets – cadastral value – rental income + proportional taxes on capital incomes + cedolare secca tax

Continued erosion of the tax base → Continued erosion of the progressive power of the tax → reduction of the Kakwani index

→ Proportional deviation reduction

Increasing in the re-ranking effect → increasing in the horizontal inequality
## II step: the role of each exclusion

### Table 2 – Redistributive effects of each exclusion

<table>
<thead>
<tr>
<th></th>
<th>CIT</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
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<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
<td>0.4461</td>
</tr>
<tr>
<td>Gini post-tax index</td>
<td>0.3938</td>
<td>0.3944</td>
<td>0.3942</td>
<td>0.395</td>
<td>0.3951</td>
<td>0.3952</td>
<td>0.3958</td>
</tr>
<tr>
<td>Reynolds-Smolensky index</td>
<td>0.0523</td>
<td>0.0517</td>
<td>0.0519</td>
<td>0.0511</td>
<td>0.0510</td>
<td>0.0508</td>
<td>0.0503</td>
</tr>
<tr>
<td>Average tax rate</td>
<td>0.1825</td>
<td>0.1813</td>
<td>0.1821</td>
<td>0.1772</td>
<td>0.1807</td>
<td>0.1785</td>
<td>0.1777</td>
</tr>
<tr>
<td>Kakwani index</td>
<td>0.2374</td>
<td>0.2366</td>
<td>0.2364</td>
<td><strong>0.2406</strong></td>
<td>0.2346</td>
<td><strong>0.2394</strong></td>
<td><strong>0.2385</strong></td>
</tr>
<tr>
<td>Re-ranking effect</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0007</td>
<td>0.0012</td>
<td>0.0013</td>
</tr>
</tbody>
</table>

Source: Authors’ elaborations.

(1) CIT – interest on government bond + withholding tax on interest
(2) CIT – financial assets + withholding tax on financial assets
(3) CIT – cadastral value
(4) CIT – rental income + cedolare secca tax
(5) CIT – self-employed income (2019) + self-employed flat tax
(6) CIT – self-employed income (2023) + self-employed flat tax

*Cedolare secca regime* → greater reduction in the degree of progressivity (- 1.20% compared to CIT system)

*Cadastral income* → slight increase in progressivity - **no** presence of withholding taxes (no wealth taxation)

*Self-employed income* → slight increase in progressivity (due to the concentration of the self-employed along the distribution) **but** higher increase in the re-ranking effect
### III step: the flat tax scheme

- Revenue neutral
- Equal redistributive effects

#### Progressivity by deduction

\[ T = t (Y - d) \]

- \( T \) = tax liability
- \( t \) = tax rate
- \( Y \) = tax base
- \( d \) = tax allowance

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#### Table 3 – Redistributive effects of IRPEF and withholding taxes

<table>
<thead>
<tr>
<th></th>
<th>IRPEF + withholding taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reynolds-Smolensky index</td>
<td>0.047</td>
</tr>
<tr>
<td>Kakwani index</td>
<td>0.236</td>
</tr>
</tbody>
</table>

Source: Authors’ elaborations.

#### Table 4 – Tax rate and tax allowance – revenue and redistributive effect neutral

<table>
<thead>
<tr>
<th></th>
<th>CIT flat tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax rate</td>
<td>32.5 %</td>
</tr>
<tr>
<td>Tax allowance</td>
<td>11,296 €</td>
</tr>
</tbody>
</table>

Source: Authors’ elaborations.
III step: the flat tax scheme

**Lorenz curves of net income - differences**

Figure 1 – Lorenz curves

![Graph](image_url)

Source: Authors' elaborations.
Comparison of all the system: average tax rate

- **IRPEF + withholding system**: Wide dispersion of the average tax rate
- **CIT progressivity by deduction**: Reducing the tax burden on the middle class

Source: Authors’ elaborations.
Conclusions

Italian Personal Income Tax

- Pillar of the Italian tax system but «weak pillar» → critical issues and controversies in the structure of IRPEF → debates on the progressivity of IRPEF
- ... but what about the erosion of the tax base?

We have investigated the role of the continuous exclusion of the source of income from the IRPEF tax base:

- Erosion of the progressive power of IRPEF
- Increasing in the horizontal inequality
- Loss of revenue

Finally, we have shown that is possible to implement a system with a comprehensive tax base and with progressivity by deduction (revenue neutral and with the same redistributive effects) → reduction in the dispersion of average tax rate

- broadening of the tax base subject to progressivity
- reducing the burden on the middle class
Thank you for your attention

For comments and suggestions: federica.lanterna@uniroma3.it

Roma Tre University – Department of Economics

9th World Congress of the International Microsimulation Association
University of Vienna
January 8, 2024
Appendix

Microsimulation model

Construction of the model

1) Identification of total income and of the IRPEF tax base
2) Grossing-up procedure
3) Application of IRPEF legislation
4) Survey weight calibration
5) Model validation
6) Simulation of future IRPEF legislation

Grossing-up procedure

Conversion of income subject to taxation from net to gross amounts. SHIW data do not contain information on gross income values. A hypothetical value of gross income is assigned to each taxpayer, then the IRPEF legislation according to the 2016 policy year is iteratively simulated through an algorithm in order to obtain a net income that is compared to the net income data in the Survey. If the two income are close, given a small margin of error, the procedure stopped.

Data

Survey on Household Income and Wealth – Bank of Italy – 2016

16,464 individuals and 7,421 households
Data on income, wealth and socio-demographic characteristics
Microsimulation model

Re-weighting procedure

- This technique is often employed in micro-simulation models, particularly if the aim is to conduct redistributive analyses.

- By building such models on survey data, the results obtained in terms of tax aggregates often deviate from what is reported in other official sources, such as administrative data on the tax-benefit system.

- The procedure has employed the information provided by the Italian Ministry of Economy and Finance, in the form of aggregata data from tax returns - with reference to the 2017 Declarations, tax year 2016 - with the external total of the exact number of the categories considered it is possible to reweight the corresponding sample groups.

- The technique has been applied on: taxpayers by income classes, total number of taxpayers, total number of employee, total number of self-employee.
Appendix

Assumptions about the withholding taxes

**Definition of capital income**

Interest on other financial assets (excluding government bonds) and dividends

**Cedolare secca tax**

We know (MEF, 2022) that 31 per cent of taxpayers choose the 10 per cent rate, the remainder the 21 per cent rate → Weighted average of the tax rate

**Self-employed flat tax**

The tax base is determined by applying sectoral productivity coefficients. On the basis of the available data, we can identify:

- Wholesale and retail trade → coefficient equal to 40 per cent
- Professional activities → coefficient equal to 78 per cent
## Appendix

### Loss of revenue

**Compare to a Comprehensive Income Tax system**

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Loss of revenue (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest on government bond</td>
<td>1,802 bln</td>
</tr>
<tr>
<td>Capital income</td>
<td>1,559 bln</td>
</tr>
<tr>
<td>Cadastral value</td>
<td>4,737 bln</td>
</tr>
<tr>
<td>Rental income</td>
<td>3,233 bln</td>
</tr>
<tr>
<td>Self-employed flat tax (2019)</td>
<td>6,802 bln</td>
</tr>
<tr>
<td>Self-employed flat tax (2023)</td>
<td>7,117 bln</td>
</tr>
</tbody>
</table>

Source: Authors’ elaborations.
## Concentration coefficients

### Income

<table>
<thead>
<tr>
<th>Ranking by total income</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total income (no exempt income)</td>
<td>0.4497</td>
</tr>
<tr>
<td>Total income (with exempt income)</td>
<td>0.4461</td>
</tr>
<tr>
<td>Interest on government bonds</td>
<td>0.5672</td>
</tr>
<tr>
<td>Capital income</td>
<td>0.6761</td>
</tr>
<tr>
<td>Rental income</td>
<td>0.5918</td>
</tr>
<tr>
<td>Self-employed income_2019</td>
<td>0.2937</td>
</tr>
<tr>
<td>Self-employed income_2023</td>
<td>0.3464</td>
</tr>
<tr>
<td>Employee income</td>
<td>0.3691</td>
</tr>
<tr>
<td>Pension income</td>
<td>0.2813</td>
</tr>
<tr>
<td>Cadastral value_ first dwelling</td>
<td>0.3013</td>
</tr>
<tr>
<td>Cadastral value_ second dwelling</td>
<td>0.6408</td>
</tr>
</tbody>
</table>

Source: Authors' elaborations.

### Tax

<table>
<thead>
<tr>
<th>Ranking by total income</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax on interest on government bonds</td>
<td>0.5672</td>
</tr>
<tr>
<td>Tax on capital income</td>
<td>0.6761</td>
</tr>
<tr>
<td>Tax on rental income</td>
<td>0.5918</td>
</tr>
<tr>
<td>Tax on self-employed income_2019</td>
<td>0.2755</td>
</tr>
<tr>
<td>Tax on self-employed income_2023</td>
<td>0.3202</td>
</tr>
<tr>
<td>CIT</td>
<td>0.6836</td>
</tr>
<tr>
<td>IRPEF</td>
<td>0.6876</td>
</tr>
<tr>
<td>IRPEF + withholding taxes</td>
<td>0.6826</td>
</tr>
</tbody>
</table>

Source: Authors' elaborations.
I step: the erosion of Irpef

Lorenz curves - differences

Source: Authors’ elaborations.
II step: the role of each exclusion

Lorenz curves - differences

Source: Authors’ elaborations.
Differences in average tax rate

CIT with flat tax and CIT by tax brackets

CIT with flat tax and IRPEF 2024+ withholding taxes

Source: Authors' elaborations.