

Commodity taxes and taste heterogeneity[☆]Stéphane Gauthier^a, Fanny Henriet^{b,*}^a Paris School of Economics and University of Paris 1, France^b Paris School of Economics-CNRS and ENS, France

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ABSTRACT

We study optimal linear commodity taxes in the presence of non-linear income taxes when agents differ in skills and tastes for consumption. We show that optimal commodity taxes are partly determined by a many-person Ramsey rule when there is taste heterogeneity within income classes. The usual role of commodity taxes in relaxing incentive constraints explains the remaining part of these taxes when there is taste heterogeneity between income classes. We quantify these two parts using French consumption microdata and find that commodities taxes are only shaped by many-person Ramsey considerations.

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1. Introduction

One common way of easing the fiscal burden on those in need is to make necessities tax-free or tax them at a lower rate than luxuries. Whether commodity taxes should be used in this way as part of the progressivity of the overall tax system is the subject to a continued debate in public finance. In a second-best world, in the case where social tastes for redistribution are ordered from the rich to the poor, the many-person Ramsey rule derived by Diamond and Mirrlees (1971) indeed recommends to set taxes involving a lower discouragement of the demand for the goods more heavily consumed by the poor. However, this recommendation only applies when the government cannot use non-linear income taxation. The analysis of Atkinson and Stiglitz (1976) and its generalization by Mirrlees (1976) demonstrated that, if the redistribution from rich to poor can be effected via direct income taxes and transfers, the only role devoted to commodity taxation is to relax the incentive constraints implied by imperfect information about taxpayers. If, as is often assumed, labor skill and effort are private information to taxpayers, redistribution from high-skill (rich) to low-skill (poor) individuals requires high taxes on necessities when these taxes deter the high-skilled from reducing their labor effort. The low-skilled suffer from high taxes on necessities but they gain from the greater scope for income redistribution due to the relaxation of incentive constraints.

In the existing literature there is suspicion that the role of commodity taxes delineated by Atkinson and Stiglitz (1976) and Mirrlees (1976) is bound up with the restrictive modeling assumption that labor skill is the only dimension

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in which agents differ. The early contributions of [Cremer and Gahvari \(1998, 2002\)](#) indeed provide examples where non-linear commodity taxes might play a redistributive role when there is heterogeneity in consumption tastes, as well as labor skill, although non-linear income taxation is also available. In practice, however, a non-linear commodity tax can only be applied to very specific goods. Most commodity taxes instead rely on total sales, e.g., value-added or sales taxes, which precludes imposition of non-linear taxes: if the tax rates were to change with the quantity purchased, buyers could avoid higher taxes by grouping or splitting their transactions. Our paper analyzes the respective roles of indirect linear (rather than non-linear) commodity taxation and direct non-linear income taxation when agents differ in terms of both labor skill and consumption tastes.

Much effort has recently been expended on the optimal shape of linear commodity taxes when individuals differ in two private-information dimensions: see in particular [Cremer et al. \(2001, 2003\)](#), [Saez \(2002\)](#), [Blomquist and Christiansen \(2008\)](#), [Kaplrow \(2008\)](#), [Diamond and Spinnewijn \(2011\)](#) or [Goloso et al. \(2013\)](#). This literature shows that the role of commodity taxes in relaxing incentive constraints continues to apply in this more general framework.¹

Our paper highlights that this narrow role of commodity taxation depends on whether different types of agents can pay different income taxes. In reality this is open to question: unobserved heterogeneity given the income and other observable characteristics is a pervasive concern in the empirical literature, and should prevent the government from designing taxes relying on a comprehensive set of individual characteristics that are relevant in the tax design, e.g., those characteristics contributing to the formation of consumption tastes. A useful theoretical modeling that can be viewed as a shortcut to account for the presence of remaining unobserved heterogeneity given the observables obtains by considering a limited number of (publicly observed) occupations or jobs relative to the total number of different agents' (taste) types, as in [Diamond and Spinnewijn \(2011\)](#). Some agents with different tastes then are necessarily grouped together into the same income class. Income taxation can be used to address heterogeneity between income classes, but it is obviously no help for achieving a finer redistribution within income classes: this role is taken up by commodity taxation.

Our main result is to show that, in the presence of a limited number of occupations, optimal commodity taxes are partly shaped by a version of the many-person Ramsey rule. That is, commodity taxes are determined by the relationship between consumption and consumers' social valuations within each income class. This result provides, in sharp contrast with the existing literature, a justification for taxing more heavily the goods that are consumed in a greater proportion by agents whose social valuation is low. It is derived from a new rule for commodity taxes that decomposes the optimal discouragement into the sum of two terms: a many-person Ramsey component and a remaining part dedicated to relaxing incentive constraints. The many-person Ramsey component is driven by heterogeneity within income classes. It recommends to discourage consumption of those agents with low social valuations, even in the presence of a general non-linear income tax, therefore reinforcing some progressivity in the tax system.

An empirical illustration on French data shows that consumption taxes over the period 2010–11 are only governed by many-person Ramsey considerations, rather than incentives. We identify two taste clusters relying on household budget shares: the first one comprises old low-education individuals, often retired and living in medium-size cities while the second cluster consists of younger urban active individuals. Referring to the classification into poor, middle and rich income classes, we find taste heterogeneity in each income class. Relying on an assumption of optimal taxes we propose a new empirical test for the detection of the relevant incentive constraints and compute the social valuations of taste clusters for every income classes. This exercise extends the revealed social preferences approach started by [Christiansen and Jansen \(1978\)](#) to the case where incentive considerations implied by nonlinear income taxation matter. We find evidence of redistribution across the two clusters at the bottom of the income distribution, but not among richer households. Redistribution among the poor appears to favor the former taste group, which consists of older low-education individuals. This pattern of redistribution echoes the public debate about intergenerational equity in France suggesting that the overall tax system could benefit older households. Our results indeed point in this same direction but narrow the horizontal equity concerns to the poor income class.

The paper is organized as follows. [Sections 2 and 3](#) describe the setup with agents differing in two dimensions and a limited number of occupations, and [Section 4](#) provides our optimal rule of commodity taxes. [Section 5](#) is devoted to the empirical illustration on French consumption microdata that quantifies the relative importance of the many-person Ramsey component of commodity taxes.

2. General setup

We consider a closed economy endowed with a population of agents who differ in terms of their labor skill i ($i = 1, \dots, I$) and consumption tastes j ($j = 1, \dots, J$). There are n_{ij} type ij agents and the total population size is normalized to 1. The preferences of a type- ij agent are represented by the continuous utility function

$$U_i(V_j(x), y), \quad (1)$$

¹ A notable exception is [Saez \(2002\)](#) whose methodology does not explicitly refer to incentives. The exact link between his results and the role played by incentive constraints highlighted by [Cremer et al. \(2001\)](#) is unclear in the existing literature (see, e.g., footnote 8 in [Saez, 2002](#)). Our paper shows how one can alter [Cremer et al. \(2001\)](#) to obtain results whose spirit is closer to [Saez \(2002\)](#).

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