THE EFFECTS OF CHANGES IN CONSUMPTION COMPOSITION AND GROWTH IN RECYCLING ON DECOUPLING HOUSEHOLD CONSUMPTION FROM ITS WASTE FOOTPRINT

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Worldwide, household consumption has significantly increased in the last decades while its composition has significantly changed. In France, economic growth (and therefore consumption growth) is a political objective. On the contrary, waste policies rather target reduction, in particular as to waste generation and waste disposal. Accordingly, decoupling household consumption growth from its waste footprint is a requirement to simultaneously achieve economic and waste policy targets. In this context, this study aims at assessing the effects of both changes in the composition of consumption and growth in recycling rates on the waste footprint of French households. Three models are combined. Firstly, the macro-econometric model “NEMESIS” is used to elaborate prospective economic scenarios by 2020. Three scenarios of economic trajectories for France are built, exclusively modifying the total volume of household consumption. In the meantime, three scenarios of consumption patterns are built, respectively assuming that i) composition remains constant from 2008 to 2020, ii) trends in consumption observed from 1980 to 2010 apply to the period 2008-2020, iii) some final consumption expenditures increase at arbitrarily chosen rates. Moreover, two models are specifically designed in order to calculate the waste footprint of French household consumption in these cases of economic scenarios by 2020. In the first place, an Input-Output model extended to waste is built in order to quantify waste from economic activities induced by household consumption. Quantities of waste to treatments are also differentiated in the model, so that scenarios of recycling can be implemented together with economic scenarios. Secondly a complementary coefficient-based model is built to compute waste generation and treatment (in ktonnes of waste) as a function of household consumption (in Meuros). The results highlight that if consumption trends observed over the last 30 years continue over the period 2008-2020, then they would favor “relative” decoupling between consumption and waste footprint in terms of dry recyclables, mixed wastes and organic wastes, and “absolute” decoupling in terms of mineral wastes. Three scenarios of recycling are additionally assessed in the framework of the economic scenarios, respectively considering the increase in recycling of source-sorted waste fractions, the increase in recovery at sorting centers and the increase in source-segregation. This assessment highlights that the increase in recycling rates would globally limit the effects of consumption growth on the demand for non-mineral waste disposal induced by French households over the period 2008-2020. However, changes in production structures would be additionally required in order to significantly decouple household consumption from its “waste disposal footprint” over the period 2008-2020.

**Figure 1 – Changes in the « waste disposal footprint » of French household consumption (in 2020 compared to 2008, in % of difference) considering 5 economic scenarios, in perspective with the corresponding changes in household consumption volume**