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DESIGNING INTERNATIONAL AGREEMENTS TO CONTROL CARBON DIOXIDE EMISSIONS

ВОПРОСЫ ФОРМИРОВАНИЯ МЕЖДУНАРОДНЫХ ЭКОЛОГИЧЕСКИХ СОГЛАШЕНИЙ ПО КОНТРОЛЮ ЭМИССИИ УГЛЕКИСЛОГО ГАЗА

В работе проведен анализ различных сценариев формирования международных экологических соглашений на примере соглашения по выбросам углекислого газа; предложена модификация схемы распределения дополнительного благосостояния, полученного при формировании соглашения, между странами-участниками, при которой все страны найдут целесообразным подписать соглашение.

Global environmental problems such as carbon dioxide emissions are characterized by the fact that quality of environment for each country depends not only on country's own emissions but also on the amount of pollutant emitted by the rest of the world. This kind of problems requires international agreements that make participating countries take into account negative effect created by their own pollution on other countries while conducting individual policies. In practice, not all countries commit themselves to participate in such agreements, e.g. non-participating country can be better off staying apart and extracting benefits from an agreement formed by the rest countries. Various authors addressed issues of fairness, implementability and efficiency of environmental agreements: Caplan, Cornes and Silva (2003) show that efficient resource allocation is possible to achieve in the presence of interregional transfers irrelative to the initial permit allocation given that group of countries decides to participate. However, participation decision is related to the design of agreement itself. The analysis in here shows that proper design of equity rule provides incentives for all potential signatories to sign the agreement.

We consider a game with four players: three regional regulators and the global agency (GEF — Global Environmental Facility) whose responsibility is to implement interregional transfers. The model includes two multi-stage sub-games:

Participation game (sequential move): Stage 1: Regulator 1 decides whether to participate in the agreement or not. Stage 2: Regulators 2 and 3 simultaneously decide whether to join the agreement or not.

Proportional equity game: Stage 1: Participating regions choose amounts of global pollutant acting in accordance with agreement. Nonparticipating regions behave in accordance with decentralized policies. Stage 2: Having observed amounts of pollutant emitted, the GEF distribute transfers for each participating country to maximize welfare function consistent with proportional equity principle.

298

First, we present regions' decisions if they act noncooperatively and apply their decentralized policies. Next, we show that if the GEF follows proportional equity rule that preserves status quo ratio of regional welfare levels, it is possible that country having first move advantage will find beneficial to act independently and not to commit itself to cooperate, while others find individually rational to sign the agreement. This is done by comparing benefits of each region from participating in the grand coalition (full participation) and benefits from the agreement in which region having first advantage move, does not belong to the agreement formed by two out of three countries (partial participation). Finally, we modify proportional equity rule to preserve the proportion of welfare levels gained with one non-signatory region. In this case free-rider incentive of the region having first move advantage is overcome by giving it more utility than in partial participation; it is also individually rational for the rest countries to accept this scheme due to additional benefits coming from inducing first region to participate.

The main result demonstrates that incentives to internalize externalities for all regions can be created in the presence of international transfers by proper implementation of proportional equity principle. In particular, proportional equity rule that guarantees proportion of regional utilities in partial participation to be constant provides efficiency of a scheme and individual rationality for each participating region.

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МОДЕЛИРОВАНИЕ ФИНАНСОВО-ЭКОНОМИЧЕСКОЙ ОЦЕНКИ ЛИЗИНГА В ИНВЕСТИЦИОННЫХ ПРОЕКТАХ

В последнее время лизинг получил всеобщее признание и стал популярен как альтернативный метод финансирования инвестиций в основные средства. Являясь высокоэффективным методом инвестирования, он выгоден и участникам лизинговых операций, и государству. Основными причинами обращения к услугам лизинговых компаний являются большая гибкость лизинга, менее жесткие требования по дополнительному обеспечению и гарантиям в сравнении с кредитом, более продолжительные сроки финансирования, меньшее количество бюрократических барьеров, налоговые преимущества, большая поддержка со стороны поставщиков. Рынок лизинговых услуг растет с каждым годом. Однако несмотря на преимущества лизинга перед другими финансовыми инструмеентами, объем лизинговых оппераций в общем объеме инвестиций Республики Беларусь составляет 2 %, в РФ — 5,5 %, в то время как в зарубежных странах этот показатель варьируется от 15 до 30 %.

В перспективе лизинг как одна из рыночных и высокорентабельных форм предпринимательства может дать рост общих объемов инвес-