Taxation, Innovation and Training

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Interest in Taxation and innovation

- Economic growth (total factor productivity) increasingly depends on innovation, involving:
  - Creation, adoption, use of 'knowledge capital', in producing new products, and implementing new production processes
  - Entrepreneurship
  - Risk (uncertain returns).
- With current economic crisis, increased focus on:
  - Role of innovation in growth, restoring public finances, and
  - Need for efficient provision of public support (tax/non-tax assistance) for innovation.

Taxation, R&D and knowledge capital

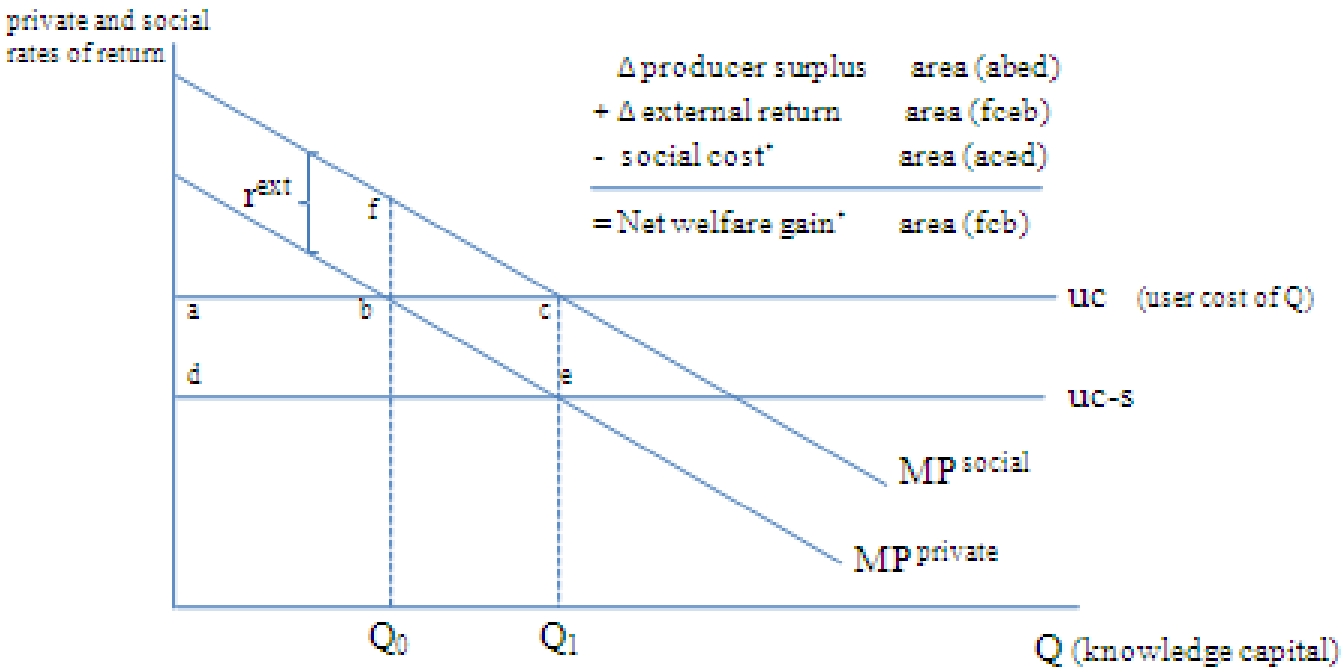
- Key objective – policy framework that supports the creation, adoption, use of knowledge capital.
- Corporate tax effects, through a number of channels:
  - After-tax cost of undertaking/investing in R&D
  - After-tax cost of acquiring knowledge capital (purchase, license)
  - After-tax returns on own-use/sale/license of knowledge capital.
- Many countries provide tax subsidies for R&D costs, while some preferentially tax returns on R&D.

Rationale for tax incentives for R&D

- Arguments for tax/non-tax support for R&D:
  - Spillover benefits of R&D (positive externalities)
    - R&D investment levels based on private returns on R&D
  - Tax impediments to investment
    - Broad-based CIT relief is expensive – tax relief for R&D limits revenue loss, targeted at a geographically mobile tax base
  - Information asymmetries:
    - Profitability of R&D not well understood by investors
    - Monitoring costs for investors
    - Particularly pronounced for SMEs
- Difficult to assess and incorporate in tax policy.

Welfare analysis underlying the 'spillover benefit' argument

Chart 1
Optimal knowledge capital (Q_1)



* Illustration assumes non-distortionary (lump-sum) taxation.

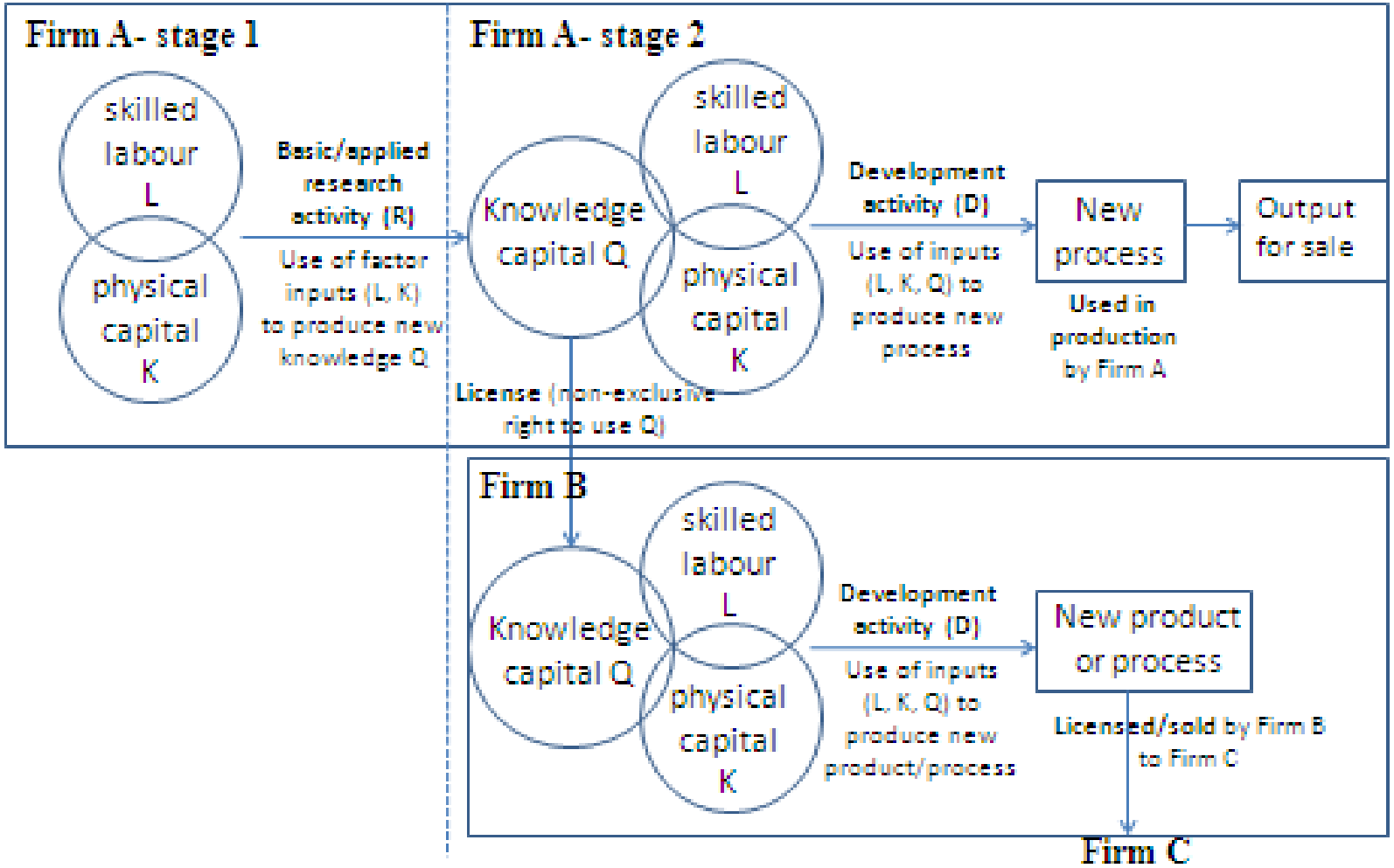
Expenditure-based tax incentives for R&D

- Accelerated or enhanced depreciation allowances for costs of investment in physical capital (e.g. machinery and equipment) used to undertake R&D.
- Investment tax credits for investment in physical capital used to undertake R&D:
  - flat versus incremental
  - wastable vs. non-wastable (refundable vs. non-refundable)
- Enhanced allowances for wage costs of labour employed in R&D activities.
- Reduced employer social security contributions (SSC) on gross wage/salary income of labour employed in R&D activities.
- Various targeting dimensions

Income-based tax incentives for R&D

- Reduced CIT rate on royalty income from licensing of the use of/rights to use knowledge capital
- Reduced CIT rate on profit from sale of knowledge capital (e.g. sale of a patent)
- Reduced CIT rate on profit from sale of goods/services produced/provided using knowledge capital
  - Difficult to measure/administer tax relief.
  - Example provided by the Dutch patent box system.

Chart 2 – Illustration of self-creation, licensing and purchase/sale of intangible assets



Taxation and R&D
- tax policy considerations -

- Possible/uncertain spillover benefits from R&D (research versus development versus adoption).
- Difficult to target incremental investment and avoid providing 'windfall gains' to investors.
- Policy strategies should take into account highly mobile nature of the location of intangibles (e.g. patents), and MNE tax planning strategies (tax avoidance).
- Policy makers encouraged to consider pros/cons of tax policy that subsidizes R&D while taxing – at basic/full corporate tax rates – profits on the use/applications of intellectual property.

Chart 2

Simple domestic structure

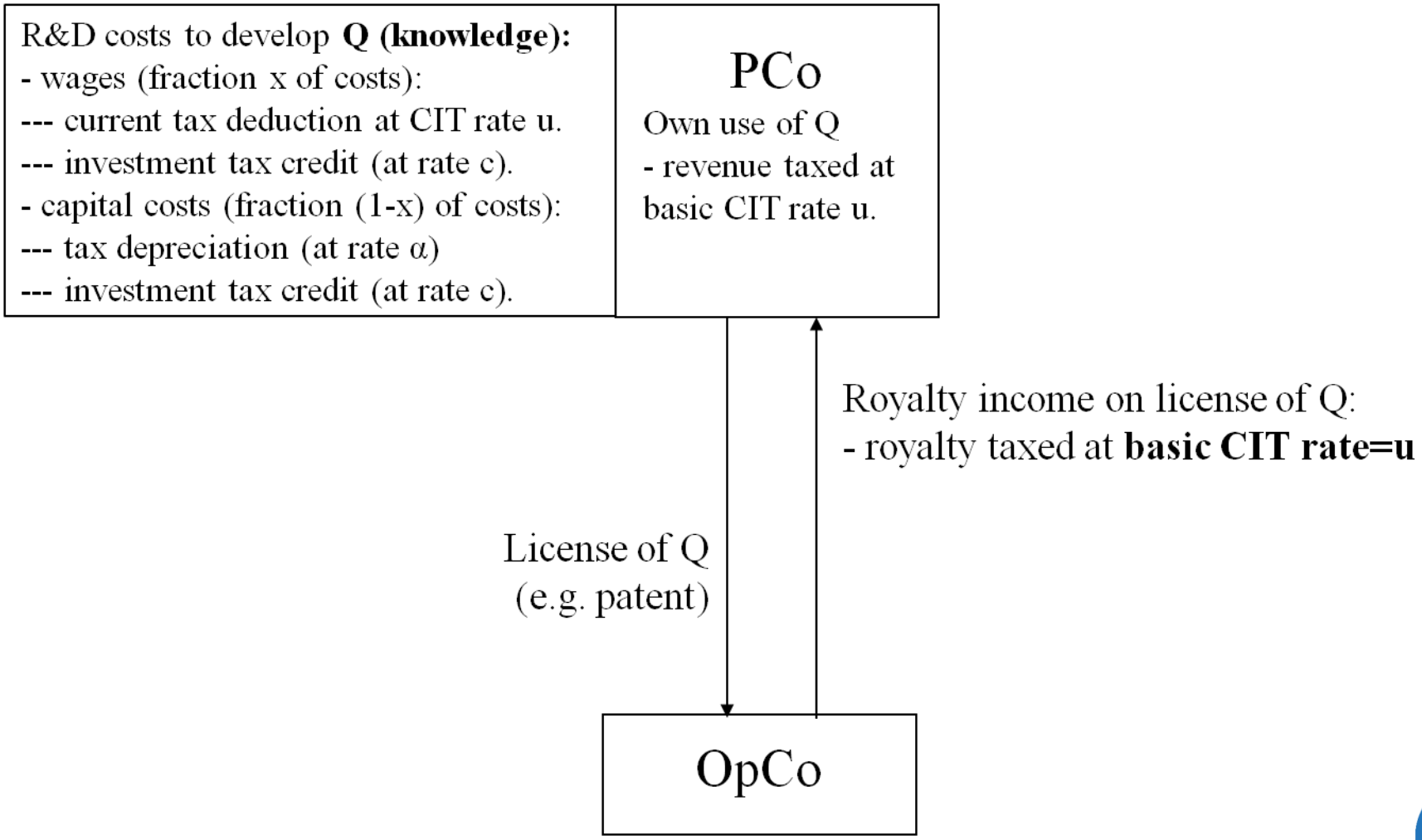


Chart 3

Simple cross-border structure

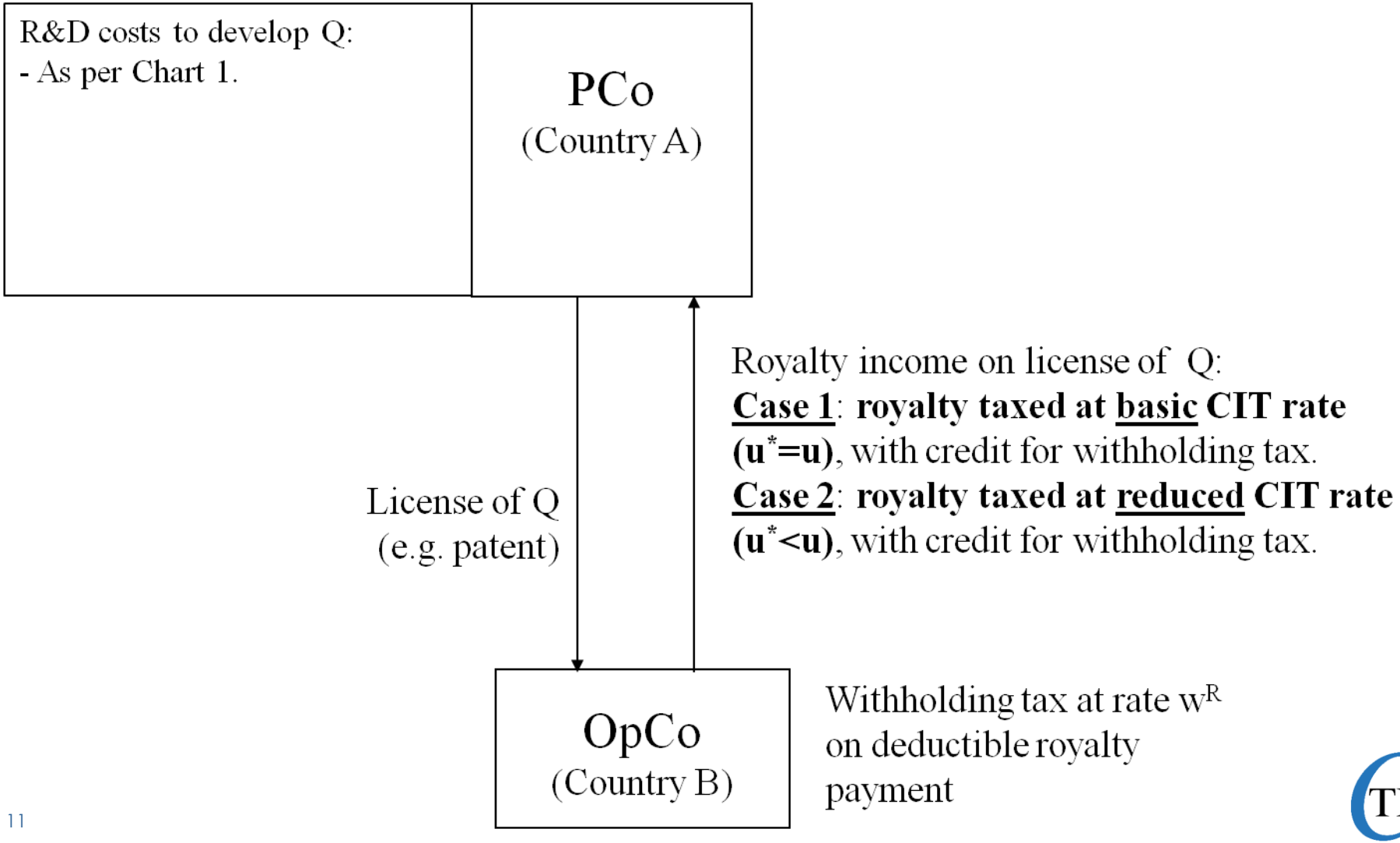


Chart 4

Triangular structure, no 'anti-deferral' rules

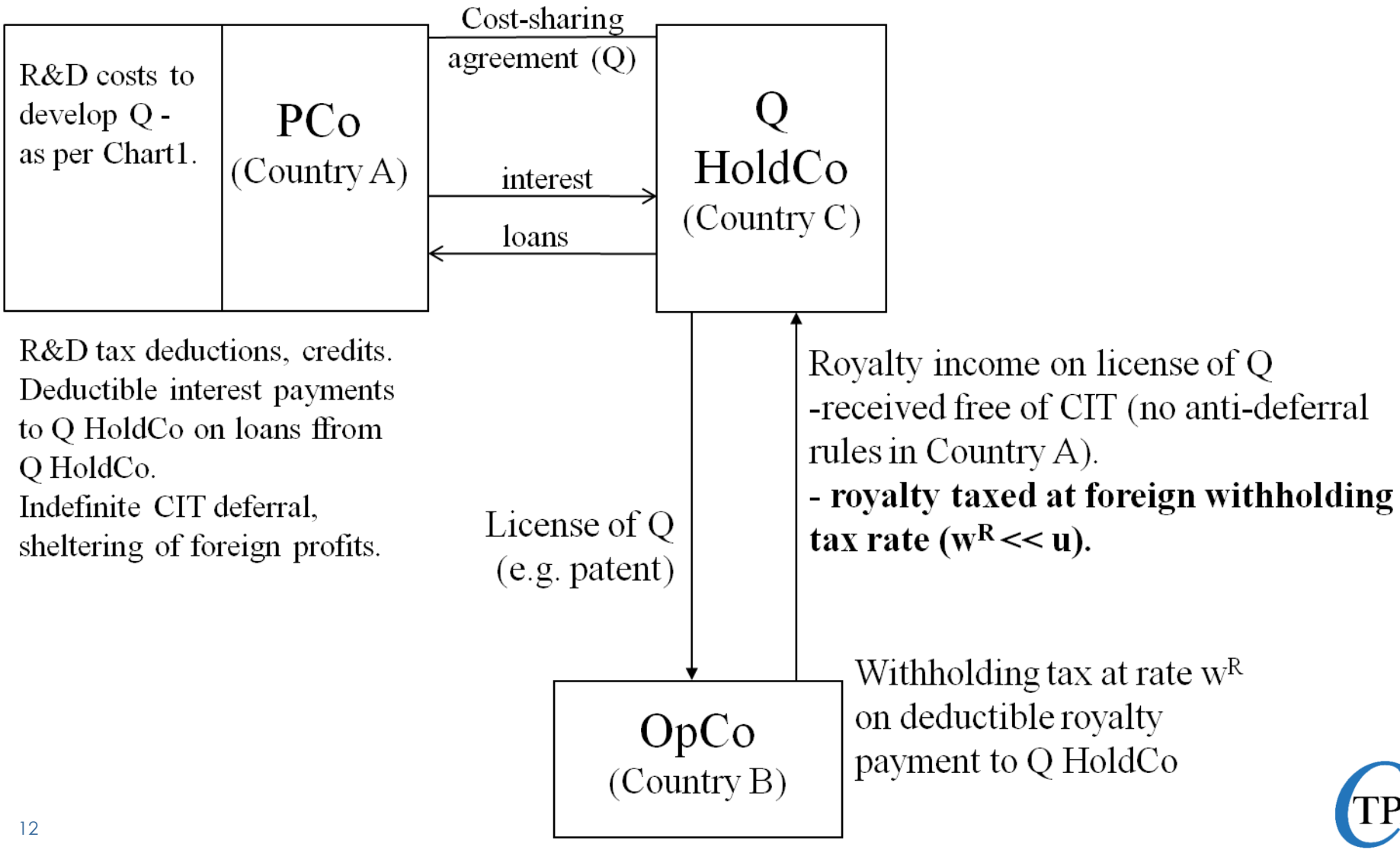
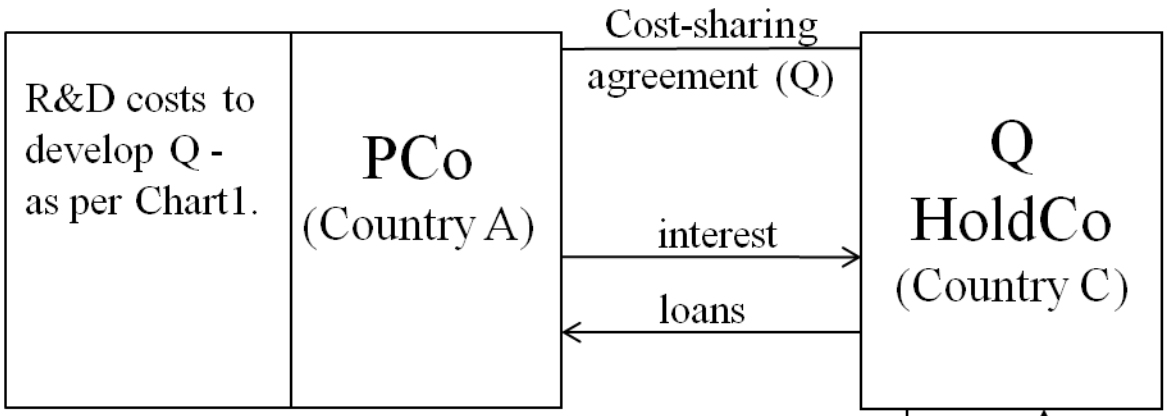


Chart 5

Hybrid structure, avoidance of 'anti-deferral' rules



R&D tax deductions, credits. Deductible interest payments to Q HoldCo on loans from Q HoldCo. Anti-deferral rules in place but avoided, indefinite CIT deferral, sheltering of foreign profits.

License of Q (e.g. patent)

Royalty income on license of Q:
-royalty received free of CIT (avoidance of anti-deferral rules in Country A).
- royalty taxed at foreign withholding tax rate ($w^R << u$).

OpCo (operating subsidiary):
- **branch** of Q HoldCo, for Country A tax purposes.
- **subsidiary** of Q HoldCo, for Country B tax purposes.

OpCo
(Country B)

Withholding tax at rate w^R on deductible royalty payment to Q HoldCo

Interest in Taxation and training

- Employment and investment – need labour with skills that match requirements of business operations.
- Training/skills upgrading may be required.
- Direct and spillover benefits of training workers.
- Policy interest in tax and non-tax policies that may efficiently encourage training/address skills gaps:
  - Productivity gains (e.g. applications of knowledge capital)
  - More even distribution of financial/social benefits of economic activity
  - Nation building.

Taxation and training
- tax policy considerations -

- Possible spillover benefits from training (labour mobility).
- Difficult to target incremental training and avoid providing 'windfall gains' to suppliers/purchasers.
- Policy makers encouraged to consider pros/cons of tax relief that reduces tax on sales (supply) of training, versus tax relief on purchase (demand) of training.
- Important question of the incidence of tax relief – distinction between entity that pays the tax, and entity that bears the economic burden of the tax.

Taxation and training
- tax policy considerations -

- Sale of training services:
  - General sales tax provisions (e.g. VAT)
  - Corporate income tax relief.
- Purchase by companies of training services:
  - Corporate income tax deductions
  - Personal income tax - taxable benefits?
- Purchase by individuals of training services:
  - Personal income tax deductions
- Qualifying training services:
  - General training (no restriction)
  - Training in current activities of worker (retraining)
  - Training in new activities of worker, part of current business activities
  - Training in new activities of worker and business.

Comments / questions