

$$\begin{array}{ccc}
 X & \xrightarrow{g} & Y \\
 \pi \downarrow & & \uparrow (\pi')^{-1} \\
 (\xi_k)_{k \in \mathbb{N}} & \xrightarrow{g_\xi} & (\xi'_k)_{k \in \mathbb{N}}
 \end{array}$$