

$$\begin{array}{ccc}
 \pi_1(T_1, \tilde{x}_1) & \xrightarrow[\cong]{f_*} & \pi_1(T_2, f(\tilde{x}_1)) \\
 \searrow p_{1*} & & \swarrow p_{2*} \\
 & \pi_1(X, x_0) &
 \end{array}$$