**REC 2312 – Econometria II, 1º semestre de 2023 – Prof. Daniel Santos**

**Teste 2**

**Nome:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #USP: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ATENÇÃO**

**Só considerarei o que estiver escrito no espaço designado para a questão. Use o rascunho para organizar suas ideias.**

Você pretende estimar o quanto espera que aumente $y$ após um incremento de $x\_{1it}^{\*}$. Seu grande problema, contudo, é que há uma segunda variável, $u\_{i}$, invariante no tempo, que é correlacionada com $x\_{1it}^{\*}$. Sabendo disso, você então decide estimar seu modelo em primeiras diferenças, $Δy\_{it}=α+βΔx\_{1it}^{\*}+Δv\_{it}$. Seus pressupostos são os de que:

1. $v\_{it}$ é completamente independente de $x\_{1is}^{\*}$ e de $u\_{i}$, com $E\left[v\_{it}\right]=0$.
2. $\left(y\_{i},x\_{1i}^{\*}\right)⊥\left(y\_{i},x\_{1j}^{\*}\right); ∀i\ne j$, ou seja, você tem uma amostra aleatória.
3. $var\left(v\_{it}\right)=σ\_{v}^{2}; var\left(u\_{i}\right)=σ\_{u}^{2}$
4. $v\_{it}$ é completamente independente de $v\_{is}, ∀t\ne s$.
5. Qual sua interpretação para o parâmetro $α$ neste caso? Seria ele o mesmo que $b\_{0}$ em um modelo do tipo $y\_{it}=b\_{0}+βx\_{1it}^{\*}+u\_{i}+v\_{it}$? Justifique.

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1. Com os pressupostos acima, você seria capaz de propor um estimador melhor do que o de primeiras diferenças? Justifique. Como sua resposta mudaria se por acaso seu painel tivesse apenas $T=2$.

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